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The Chat

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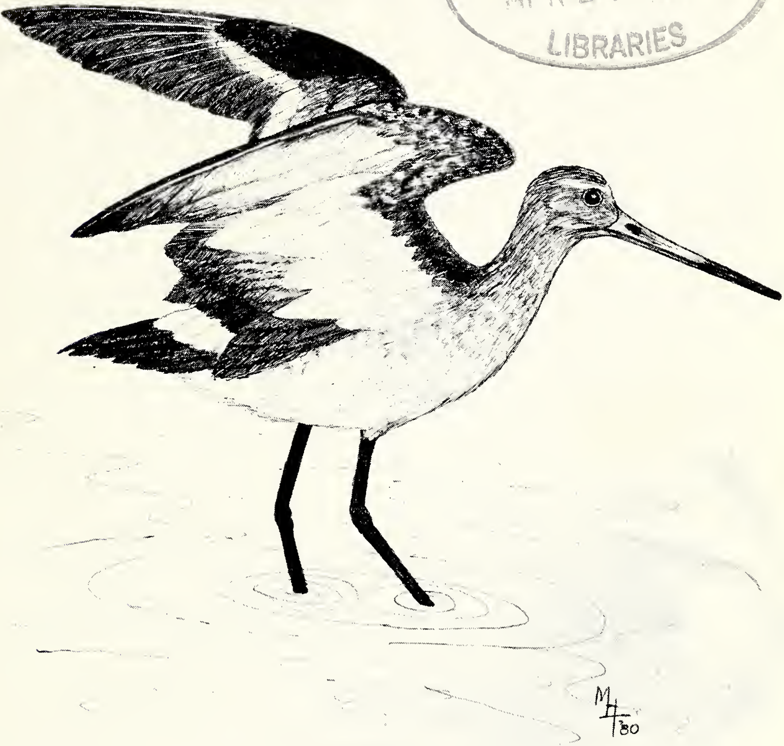

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The Chat

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OUR COVER—In January 1980 a Black-tailed Godwit brought birders from all over the country to Bodie Island, N.C., in search of the rare wanderer from Eurasia. Michael Tove prepared the cover drawing of this bird and, along with David Hughes, wrote a field note about the occurrence. The Tufted Titmouse on page 9 is by John W. Taylor, courtesy of N.C. Wildlife Resources Commission. John Henry Dick contributed the White-throated Sparrow on page 24.

SPRING BIRD COUNT—1980

JOHN O. FUSSELL III

Participation in the 1980 Spring Count was down from recent counts. The number of areas censused, 22, was the lowest in several years, as was the number of field observers (451) and field-hours (1403.6). Unfortunately, only one mountain area census and three South Carolina censuses were received. One new area was covered, Cape Lookout, where there was an inshore movement of pelagic species rarely or never reported on previous counts.

Predictably, the total number of individuals (105,873) was down from recent censuses, the percentage decrease roughly equal to the percentage decrease in coverage. The composite species total, 246 (plus two hybrids), was also down (257 in 1978, 256 in 1979), but most individual counts had higher species totals than in 1979. Highest coastal and inland totals were at Wilmington and Raleigh, with 170 and 148 species, respectively.

In general, count days were partly cloudy to clear, were warm with light winds, and had no rain. This was especially true of the 12 counts held on 3 and 4 May. There was little frontal activity during the count period and no major frontal activity just before or during the individual counts. Thus, viewing conditions were generally very pleasant, but several compilers cited the absence of waves of migrants. Only one count, Cape Lookout, had a significant amount of rain, but in this rare instance, the rain was more of a help than a hindrance (see compilers' comments).

One positive aspect of the 1980 count was the large number of rare species that were found; in fact, almost all counts had at least one extraordinary species: Perhaps the most outstanding rarities were the **Alder** and **Yellow-bellied Flycatchers** at Raleigh and the count period **Ruff** and **Bewick's Wrens** at Morehead City and New Hope River. For details on these and numerous other noteworthy species, see the compilers' comments.

Some of the population trends I've mentioned on earlier censuses were apparent again this year. Only 32 Glossy Ibises were reported, the fewest since the species' early "boom days." Likewise, only 28 (lowest ever?) Loggerhead Shrikes were tallied. Will this species soon be a "boldface bird"? A survey of past counts suggests that this year's count of 3 Horned Larks also reflects a steady decline. Only 2 Ground Doves were reported, but since this species is regularly reported from only two areas, it's hard to draw conclusions. The 7 Long-billed Marsh Wrens at the three coastal localities (more—9—were found inland!) may reflect mortality of the species in North Carolina from the snow storm in early March. Winter finches were down this year: 105 Evening Grosbeaks, 34 Purple Finches, and no Pine Siskins. One lone Red-breasted Nuthatch was found.

Of the species that were up in numbers this year, I noticed three that, trend-wise, stood out. The 109 Sandwich Terns are, by far, a record count. House Wrens (182) appear to be increasing after a population dip. And then there is the House Finch. For the past 5 years, this species has, on the average, doubled its count numbers of the previous year, and 1980 was no exception—40 in 1979, **92** in 1980. Will it happen again next year? Another question for compilers: Are these count birds breeding birds or tardy winter residents?

Once again, due to CBC's economic situation, there can only be a one-page table of selected species. I have included all raptorial species, all species considered endangered and threatened in North and South Carolina (of North Carolina threatened list, only those that are threatened statewide), and the winter finches.

Compilers are to be commended for tabulation of this year's count. Almost all individual totals were added correctly. For several counts, compilers are **not** to be commended for supplying supporting details about rarities. Unfortunately, I had to

TABLE 1. Selected species from the 1980 Spring Bird Count in the Carolinas.

	Species totals	Cape Lookout, N.C. 18 May	Morehead City, N.C. 27 April	Wilmington, N.C. 26 April	Charleston, S.C. 4 May	Beaufort Co., N.C. 4 May	Dillon Co., S.C. 1 May	Cumberland Co., N.C. 4 May	Southern Pines, N.C. 3 May	Raleigh, N.C. 3 May	Durham, N.C. 27 April	Chapel Hill, N.C. 11 May	New Hope River, N.C. 4 May	Greensboro, N.C. 3 May	Winston-Salem, N.C. 3 May	Stanly Co., N.C. 17 May	Iredell Co., N.C. 3 May	Charlotte, N.C. 3 May	Greenville, S.C. 29 April	Pilot Mtn. State Park, N.C., 10 May	Elkin-Ronda, N.C. 10 May	Caldwell Co., N.C. 3 May	Brevard, N.C. 3 May
Brown Pelican	146	—	12	59	75	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Anhinga	45	—	*	35	10	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Turkey Vulture	309	—	11	9	49	13	*	1	—	5	8	47	71	—	2	18	6	2	1	33	—	2	31
Black Vulture	54	—	10	—	10	—	—	—	—	—	—	6	9	—	1	—	—	—	—	14	3	1	—
Shallow-tailed Kite	2	—	—	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mississippi Kite	2	—	—	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sharp-shinned Hawk	26	—	—	—	—	3	—	*	1	1	5	4	—	—	1	1	6	1	—	—	—	2	1
Cooper's Hawk	10	—	*	—	—	—	—	1	—	—	—	2	—	1	1	1	1	—	—	—	—	2	1
Accipiter (sp.)	2	—	—	—	—	—	—	—	—	—	—	—	2	—	—	—	—	—	—	—	—	—	—
Red-tailed Hawk	163	—	3	1	4	4	1	2	*	19	7	24	30	5	8	9	16	7	2	15	2	3	1
Red-shouldered Hawk	73	—	5	1	16	8	—	*	—	5	1	14	16	1	—	1	1	1	—	2	—	1	—
Brood-winged Hawk	32	—	—	—	—	—	—	—	—	3	—	6	4	—	4	2	—	2	—	5	—	—	6
Bald Eagle	*	—	—	—	—	—	—	—	—	—	—	—	*	—	—	—	—	—	—	—	—	—	—
Marsh Hawk	14	—	1	1	—	1	*	—	—	—	3	2	1	4	—	—	1	—	—	—	—	—	—
Osprey	119	1	13	63	18	6	—	*	1	5	3	—	2	2	2	1	*	—	—	1	—	—	1
Merlin	*	—	—	—	—	—	—	—	—	—	—	—	*	—	—	—	—	—	—	—	—	—	—
American Kestrel	27	—	—	—	2	1	*	1	—	1	2	1	*	3	4	4	—	2	—	—	1	4	1
Least Tern	400	35	144	207	6	8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Barn Owl	6	—	—	—	—	—	—	—	—	—	—	—	—	—	4	—	—	—	—	—	—	2	—
Screech Owl	39	—	3	1	3	1	—	—	3	7	—	6	4	3	3	1	—	—	—	—	2	2	—
Great Horned Owl	24	—	—	2	1	—	—	*	—	2	3	8	5	—	1	—	—	1	1	—	—	—	*
Barred Owl	97	—	4	3	12	3	—	1	2	3	5	21	32	—	—	—	3	6	—	—	—	—	2
Red-cockaded Woodpecker	30	—	2	2	8	10	—	4	4	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Red-breasted Nuthatch	1	—	—	—	—	—	—	—	—	—	—	—	—	—	*	—	—	—	—	1	—	—	—
Evening Grosbeak	105	—	—	—	—	—	—	—	—	13	41	12	2	—	*	2	—	6	—	—	—	17	12
Purple Finch	34	—	—	—	—	—	—	—	—	—	*	—	1	6	4	—	—	—	—	—	—	6	17
House Finch	92	—	—	—	—	—	—	—	—	36	—	—	—	12	17	1	—	8	—	—	—	18	—
Bachman's Sparrow	15	—	—	4	11	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total no. species	246	57	157	170	140	116	65	108	119	148	121	133	137	118	143	80	103	121	73	97	61	90	107
Total no. individuals	105,873	1,452	10,744	9,874	8,464	3,276	1,443	2,857	2,410	11,484	4,274	8,602	7,355	7,250	6,095	2,274	2,932	4,547	1,122	1,771	622	1,702	5,323
Field observers	451	2	21	21	16	17	3	11	9	44	19	60	28	30	46	12	9	33	7	8	3	11	41
Yard observers	106	0	6	0	0	17	1	2	0	0	3	15	0	4	1	21	2	3	5	0	4	8	14
Field parties	179	1	12	9	6	8	2	6	6	23	7	21	15	9	12	5	3	7	3	5	1	6	12
Field-hours	1403.6	12	69.5	88.5	54	62	18	29.8	55.5	140	57	139.5	122.3	98	128	29.5	27	68	27	68	8	32	70
Field-miles by foot	551.5	6	17.5	53.5	34	24	5	10.5	16	75	35	34	65	30	41	15	10	21	10	29	4	8	8
Field-miles by car, boat	3337.8	16	265	431	221	217	76	112.3	193	125	67	365	255	254	55	65.5	138	185	35	32	15	35	180

*Count period but not count day

delete a few very rare species that were not even mentioned as being unusual. There were some rare species I did not delete, that, although details were supplied, the details did not sufficiently rule out similar species. Again this year, it appeared that some compilers, perhaps not wanting to make enemies, passed the buck. To these compilers, I'll repeat an earlier suggestion: Make an extremely conservative list of species to be expected in your area on count day, supply it to count participants, and explain that any additions to the list must be thoroughly documented. This puts the burden of proof on the observer, where it belongs, and takes the burden of "disproof" off the compiler. **Please note again:** details supporting a rarity such as "seen by John Doe in a tree," "seen closely," "characteristic song was heard," and "all diagnostic characters were noted," say virtually nothing.

Thanks to Harry LeGrand for his comments on some troubling rarities.

COMPILERS' COMMENTS

COAST

CAPE LOOKOUT, N.C. (center: 4.5 miles NE of Cape Lookout Lighthouse).

18 May. Only areas covered were Cape Lookout, east end of Shackleford Banks, and Back Sound. Some of the islands in Back Sound were covered briefly or scanned from a long distance. During rain squalls from 1100 to 1300, both observers (Compiler, Bob Lewis) witnessed, from the shelter of abandoned WWII fortifications on the west beach of the Cape, many pelagic birds moving southeastward over the surf: 3 **Sooty Shearwaters,** 50 **Wilson's Storm-Petrels,** 2 **Northern Phalaropes,** and 5 **Parasitic Jaegers.** This nearshore movement stopped abruptly when the squalls ended and skies began to clear. (For 3 days prior to count, winds had blown steadily from an easterly direction.) Another 8 Wilson's Storm-Petrels were present in Cape Lookout bight throughout the day. The total number of Gannets, **27**, is noteworthy for the date. A grand total of 14(!) species of land birds were tallied.—JOHN O. FUSSELL III, 1412 Shepard Street, Morehead City, N.C. 28557.

MOREHEAD CITY, N.C. (center: 0.7 mile NW of Crab Point in Newport River).

27 April. Windy weather hurt species total, but probably contributed to the presence of **179** Gannets and the **Pomarine Jaeger.** Bob Hader watched the jaeger off Bogue Banks; several Ring-billed Gulls were nearby for size comparison. The 3 Hooded Mergansers (several observers) were slightly late. Uncommon migrants, all males, were **Black-throated Blue Warbler** (Compiler), **Scarlet Tanager** (Mike Alford, Laura Walters), and count period **Rose-breasted Grosbeak** (Laura Walters) on 26 April. A **Ruff** (tentatively identified as an immature Reeve) was found by the compiler at Brant Island 29 April. It remained until at least 5 May and was seen by numerous observers. [Because this species is rare in the Carolinas and because there is so much individual variation within the species, I'll list several prominent field marks and characters of this individual: associated with Lesser Yellowlegs and other species in shallow pool habitat; was very close to Lesser Yellowlegs in body size (thus identification as a Reeve); had erect posture; had bright orange legs and black, apparently slightly decurved bill; back and upper wing surface were brown with a noticeably scaly appearance; brown wash of breast contrasted greatly with very light belly. When the bird flushed, it never permitted a satisfactory look at the tail pattern.—JF]—JOHN O. FUSSELL III, 1412 Shepard Street, Morehead City, N.C. 28557.

WILMINGTON, N.C. (center: Monkey Junction).

26 April. Most unusual observation was of a **Least Flycatcher,** found by Greg Massey at Orton Plantation. Its song was compared to that of Acadian Flycatchers that

were singing in an adjacent bottomland area. Somewhat unusual migrants were 2 **Scarlet Tanagers** and 2 **Rose-breasted Grosbeaks;** both species were seen by several observers. [Unfortunately there were no details supporting the Blackburnian Warbler. —JF]—KITTE KOSH, 188 Lake Forest Parkway, Wilmington, N.C. 28401.

CHARLESTON, S.C. (center: 14 miles NE of Mount Pleasant and 0.5 mile E of US 17).

4 May. Caper's and Deewee's Islands and the mudflats, marshes, and tidal creeks of Seewee Bay were not covered this year. **Willow Flycatcher** was observed closely at Fairlawn Plantation by David Chamberlain and Dennis Forsythe. Bird was singing "fitz-bew" song; its lower mandible was noted to be light yellow.—JULIAN HARRISON, Biology Department, College of Charleston, Charleston, S.C. 29401.

COASTAL PLAIN

BEAUFORT COUNTY, N.C. (center: entrance of Upper Goose Creek into Pamlico River).

4 May. Yellow-crowned Night-Heron (Compiler), although new to count, is regular at this season. Slightly late were Marsh Hawk, American Kestrel, Hermit Thrush, and Ruby-crowned Kinglet; the Hermit Thrush was carefully identified. Most unusual was a singing **Dickcissel** (Connie, Emily, and James Albera). It was approached to within 25 feet, and the black bib and yellow breast were seen well.—GERALDINE COX, P.O. Box 162, Washington, N.C. 27889.

DILLON COUNTY, S.C. (center: Dillon).

1 May. The locally unusual **American Bittern** was observed by the compiler.—JOHN H. WILSON, Box 535, Dillon, S.C. 29536.

CUMBERLAND COUNTY, N.C. (Note: Center has been moved to a point on I-95 that is approximately 1 mile N of I-95 Middle Road overpass.)

4 May. Rare were the count period **Short-billed Marsh Wrens** (2), and very rare was the count period **Nashville Warbler,** all found by the compiler. The marsh wrens were seen 9 May; the streaked crown, lack of eye stripe, and short tail were observed at close range in marsh habitat. The Nashville Warbler was found 30 April; gray head, white eye ring, and yellow throat were seen closely. The compiler also saw 2 **Semipalmated Plovers** 5 May.—PHILIP J. CRUTCHFIELD, 901 Montclair Road, Fayetteville, N.C. 28304.

SOUTHERN PINES, N.C. (center: 1 mile NE of Skyline).

3 May. Two Canada Geese (Dick Repasky) over Whispering Pines were late. Notable finds at Lake Surf were a **Snow Goose** and 4 **Caspian Terns,** all seen by Tom Howard. The adult Snow Goose (white morph) had been present for several months. Howard also found a male **Bay-breasted Warbler,** a first spring record for the area.—J.H. CARTER III, P.O. Box 891, Southern Pines, N.C. 28387.

PIEDMONT

RALEIGH, N.C. (center: Norfolk and Southern RR crossing on Lake Wheeler Road).

3 May. Most warblers were scarce except for Black-throated Blues, Cape Mays, and Blue-wingeds. Several unusual species were turned up, the rarest being **Yellow-bellied Flycatcher, Alder Flycatcher,** and **Warbling Vireo.** Eric, Jack, and Ron Johnson noted the "fee-bee-o" song of the Alder Flycatcher and compared it to Acadian Flycatchers in the same area; this is only the second local record. The same observers

also found the Yellow-bellied Flycatcher in an edge area of young pines and rose vines; identification was based on song and yellow throat. [Ron Johnson is from Wisconsin and is familiar with the northern *Empidonaces.*—JF] Warbling Vireo (Mary Weber) was singing and identification was based primarily on the song. Many somewhat unusual water birds were found: 2 **Double-crested Cormorants** (Merrill Lynch), **Little Blue Heron** (Compiler, Ken Knapp, Clyde Smith), 2 **Red-breasted Mergansers** (Lynch et al.), **King Rail** (Wayne and Fran Irvin et al.), 2 **Bonaparte's Gulls** (Lynch et al.), **Forster's Tern** (Lynch et al.), and 2 **Caspian Terns** (Compiler).—R.J. HADER, 3313 Cheswick Drive, Raleigh, N.C. 27609.

DURHAM, N.C. (center: 1 mile N and 1 mile E of US 501 bridge over Eno River).

27 April. The species total is a record for Durham, undoubtedly because it was one of the latest of our counts (!). A good migration year helped. Most unusual find was the singing **Golden-winged Warbler,** observed by Steve Graves and Charlie Saunders. **Common Loon** (Ann Chester, Compiler, et al.) is locally noteworthy.—JOHN HORN, Department of Botany, Duke University, Durham, N.C. 27706.

CHAPEL HILL, N.C. (center: intersection of Franklin and Columbia Streets in Chapel Hill).

11 May. The late census date resulted in a relatively low individual total; migration peak for most species was prior to count. **Seven** species of herons and bitterns were seen, including **Black-crowned Night-Heron** (Norman Budnitz, Jim McConnell, et al.) and **Yellow-crowned Night-Heron** (Steve Graves, Dan Kaplan). Two **Semipalmated Plovers** (McConnell) were well described [... and well drawn. McConnell's excellent drawings, on this and the New Hope count, made verbal descriptions almost redundant.—JF]. The 13.5 "owling hours" resulted in a total of **131** Whip-poor-wills. Linda and Phil Drew and Bill and Margaret Wagner had a close, leisurely study of a singing **Wilson's Warbler** 9 May; they noted well the black cap, yellow forehead and face, and solid yellow underparts. [Aren't the 2 Brown Creepers a little late?—JF]—BILL AND MARGARET WAGNER, Route 2, Falls of New Hope, Chapel Hill, N.C. 27514.

NEW HOPE RIVER, N.C. (center: the point where SR 1700 crosses New Hope River).

4 May. This is a record species total. Most unusual were the count day **Whimbrel** (Bruce and Linda Lord) and count period **Bewick's Wrens** (Barbara Roth). The Whimbrel was described as being mottled brown, having a long decurved bill, outstretched neck, and being about 15 inches long. [These details would seem to rule out other species. On the other hand, especially considering the degree of rarity of the Whimbrel away from the coast in North Carolina, they were very brief and raised many questions. Was this bird flying over a wooded area at an altitude of only 20 feet?—JF] Roth found the two Bewick's Wrens 11 May; from 20 feet, she observed their white underparts and white-spotted outer tail feathers. Jordan "Reservoir's" mudflat and marsh habitats continue to attract many wetland species: 3 **Black-crowned Night-Herons** (Jim McConnell, Mike Schultz, Matt Spencer), 3 **American Bitterns,** 6 **Semipalmated Plovers** (Ken Knapp), **11** Ring-billed Gulls, **7 Long-billed Marsh Wrens** (several observers), 2 **Short-billed Marsh Wrens** (several observers), and **86** Swamp Sparrows. Eleven species of shorebirds were seen count day, and four additional ones were found during count period, including **White-rumped Sandpiper, Dunlin,** and Western Sandpiper. Singing **Nashville Warbler** (Lance Peacock) was identified by sound only; however, Peacock is familiar with its song.—ANGELO CAPPARELLA, 400 West Main Street, Carrboro, N.C. 27510.

GREENSBORO, N.C. (center: transmitter tower of Radio Station WBIG).

3 May. Margaret Bushnell and Michelle Irvin observed the **Lawrence's Warbler** closely for several minutes, noting the presence of black throat, yellow underparts, and wing bars.—DONALD ALLEN, 2611 David Caldwell Drive, Greensboro, N.C. 27408.

WINSTON-SALEM, N.C. (center: intersection of I-40 and Silas Creek Parkway).

3 May. The **22 Common Loons** and **9 Double-crested Cormorants** were observed by Harry and Ramona Snavely at Salem Lake 27 April. Kevin Hintsa found a **Brewster's Warbler** along Silas Creek on 28 and 30 April and 1 May, and observed all field marks from as close as 15 feet.—RAMONA R. SNAVELY, 115 Plymouth Avenue, Winston-Salem, N.C. 27104.

STANLY COUNTY, N.C. (center: in Morrow Mountain State Park).

17 May.—TONI B. PHILLIPS. Morrow Mountain State Park, Route 2, Box 204, Albemarle, N.C. 28001.

IREDELL COUNTY, N.C. (center: South Yadkin River Bridge on Chipley Ford Road).

3 May. A wave of Yellow-rumped Warblers was noted. The total of **300** is especially high considering the relatively low number of observers.—SAMUEL A. CATHEY, P.O. Box 671, Statesville, N.C. 28677.

CHARLOTTE, N.C. (center: intersection of South Boulevard and Woodlawn Road).

3 May. **Great Egret** was studied by Ed Reed et al. **Least Flycatcher** (Randy Cross) was singing. Jack Hamilton studied the **Golden-winged Warbler** closely.—W.A. BROKAW, 3611 Quail Ridge Lane, Matthews, N.C. 28105.

GREENVILLE, S.C. (center: intersection of highways 291 and 29).

29 April—ROSA LEE HARDIN, Star Route Box 60, Cleveland, S.C. 29635.

PILOT MOUNTAIN STATE PARK, N.C. (center: intersection of US 52 and Perch Road).

10 May. [I'm delighted to say, especially since the count date was late, that the 5 Rusty Blackbirds, seen by Jim Mattocks, were convincingly described. I tend to be skeptical of many late reports of this species. I also appreciate the description of the Red-breasted Nuthatch, since the species was so rare this past winter.—JF]—E. WAYNE IRVIN, 3600 Penny Court, Raleigh, N.C. 27606.

ELKIN-RONDA, N.C. (center: intersection of US 21 and US 21-A, 3 miles N of Elkin).

10 May.—JERRY TYSINGER, 128 Bon Air Drive, Elkin, N.C. 28621.

CALDWELL COUNTY, N.C. (center: Lenoir).

3 May.—HELEN E. MYERS, 310 Beall N.W., Lenoir, N.C. 28645.

MOUNTAINS

BREVARD, N.C. (center: 5 miles SE of Brevard at Rich Mountain Lookout Tower).

3 May. **Cattle Egret** (Lynn Hiller, Ed and Ruth Hathaway) was in pasture with cattle. Several observers found the **Sora** at a golf-course pond and approached it closely enough to see the yellow bill and other field marks. Patrick Bohan studied the 2 **Swainson's Warblers** closely for several minutes.—WALTER C. HOLLAND JR., 290 Maple Street, Brevard, N.C. 28712.

Backyard Birding

... with Gail T. Whitehurst

Backyard Birders! We are eagerly awaiting news from you. The winter season of 1980-81 was a good one for the northern finches in the Raleigh area. Did you have an unusually large number of Evening Grosbeaks, Purple Finches, and Pine Siskins at your feeders? How about Red Crossbills? Perhaps you had an unusual visitor—a lingering summer resident or transient which found your backyard so inviting that he stayed with you a period of time.

What interesting or amusing behavior did you observe at the feeders or birdbaths? For instance, we have a hanging feeder made from a coconut shell. Filled with a mixture of cornmeal, suet, and peanut butter, it was intended for Northern Orioles (they need something more substantial than Kool-Ade or sugar water). Not only do a pair of orioles come to this feeder, but also numerous small birds (chickadees, titmice, nuthatches, and wrens) *and* a Red-bellied Woodpecker and a Common Flicker. It is fantastic, and a bit comic, how these larger birds manage to cling to the feeder as they wrap themselves around it. This is the one time when one can see clearly the red belly of the woodpecker.

Sauna—Scandinavian Style

One sub-freezing morning, we poured boiling water in the birdbath, to melt the ice. Shortly thereafter, we observed several Pine Siskins sitting on the rim and apparently bathing in the hot steam that arose as they were going through elaborate grooming rituals.

Unusual Winter Visitor

Our thanks to Helen E. Myers of Lenoir, N.C., for telling us about a male Rose-breasted Grosbeak that spent the winter season of 1979-80 at her feeders. She relates:

> "On December 10 a male Rose-breast came to a feeder in my yard. It's feathers were rumpled. It was ravenous. It sat in the feeder and ate sunflower seed for thirty minutes, before it was frightened away by a pigeon. I did not see it again for some time.... On January 9 I spotted him at a feeder. Almost every day from then until April 12 he fed at one of my feeders or half a block away at my sister's, Mary May. When I saw him on January 9 he had improved. His feathers were well groomed. It was really great to have this unusual visitor."

More on Bathing Under a Hose

On October 5, 1980, as I was watering shrubbery in my yard, I noticed a male Red-breasted Nuthatch perched about 8 feet away in a small poplar tree. I stooped down and remained as still as possible. Shortly, he flew to the ground within 2 feet of me and into the spray from the hose. He had a lengthy shower then flew back to the perch in the poplar and proceeded to fluff and preen. This is the only experience I have had with a wild bird in the act of bathing from a hand-held hose.—ADAIR TEDARDS, Route 4, Box 157, Easley, S.C. 29640

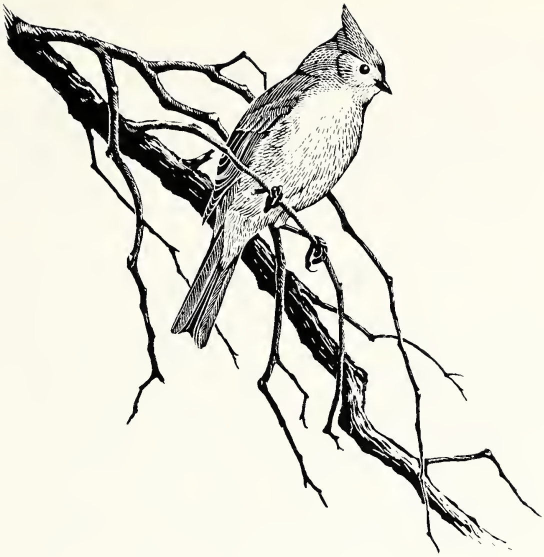
The Tufted Titmouse

"Peter, Peter, Peter," comes the bold, loud call of the small, gray bird. A little farther away, another bird answers the call, saying "Peter" four times. I have heard this call from earliest childhood spent in the mountains of North Carolina. I hear it daily around my home in Raleigh and have heard it on visits to the coast. What is the name of the bird that calls so frequently in woodland and suburb, field and forest across the Carolinas? He is that lively and, seemingly intelligent, little mouse-gray bird with large black eyes, a crest, a white belly, and patches of burnt orange on his flanks or the sides, known to all of us as the Tufted Titmouse. He is a member of a large family of little birds, including our Carolina Chickadee, which are known in England as "tits." Many birders think this family contains the smartest of all our perching birds, and my experiences and observations of them would make me tend to agree.

The titmouse is quite common everywhere and a familiar bird at feeding stations where he comes for suet and sunflower seeds. Closer observation and even a personal acquaintance with a titmouse has revealed to me some delightful traits of personality, which I should like to share with others. That little crest of his is usually quite erect, but when the bird is very angry or frightened, it lies flat across his head, making his large, round eyes appear even larger. His feet and toes are blue-gray in color—those of first-year birds, quite blue. He is an acrobat, equally as agile and at home swinging upside-down as upright. He can perch on the side of a tree—head up, head down, or sideways. He is perpetual motion all day long.

Some years ago, the two pairs of titmice that came to my feeders decided to join the growing group of semi-tame birds that had come to accept me, my binoculars and, more specifically, my handouts of birdfood. Quite by accident, I noticed that they were flying down to snatch the shelled-out peanuts we had been tossing out to entice a young squirrel near. In no time at all, all four titmice came to expect a peanut or two every time they found me outside. At first they would fly to the nearest perch and, holding the peanut in one foot, wham it to pieces with their beaks and eat the broken bits. Soon they demanded more, which they took away and hid—in an old pine cone, a crack or crevice in the bark of a tree, in the leaves or a clump of grass on the ground. As they became less fearful, they would hide their nuts around the house—on window ledges, under shingles on the roof, anywhere they could find a niche large enough to stash the nut. Once, one hid a nut in a large hole in a stump, but the nut still showed. Another titmouse, catching sight of it, went to the nut and pounded it out of sight. The colder the day, the more nuts the little birds will take and the faster they find hiding places. They will find some of these nuts again in the course of wanderings over the trees and yard, but most will be found by other small birds and, more likely, by squirrels, chipmunks, and mice, whose keen sense of smell will locate the food.

Now all birds are nervous and always on the alert for danger, but some are more so than others. The titmouse, when appearing all absorbed in eating, drinking, or hiding food, is keeping his eyes and ears open at all times. His little head is turning every second and those big eyes are searching everywhere—the ground below, the sky above, the trees and shrubs around him. He can be gone in a flash. He has a great deal of curiosity, just has to know what is going on in the world about him and is first on the scene if a cat or strange bird appears. Once he recognizes the person who hands out food, he wastes no time letting his presence be known. I cannot ignore our four titmice. If I should pretend not to see them, they come closer and closer, squeaking and squealing, scolding and calling. If I still do not come up with the nut, they will fly at my face and around my head



as if to say, "Notice me, here I am. I want my nut, now!" Because of this behavior, I am certain that these are the same birds coming from year to year. However, birds learn so quickly from one another, it is possible for replacements to have occurred.

Like all birds, titmice have their own special territories, land to which they lay claim and on which other titmice must not intrude. During the fall and winter, they relax a bit on the boundary lines, but in late winter and early spring, some downright ugly squabbles can develop when one pair or the other steps over the line. One pair has ownership of the front yard and the woods across the street; the other holds the back yard and all the land extending some two blocks back to a creek. The feeders around the house attract both pairs and things get rough should all four show up at the same time. The call, "Peter, peter," becomes a warning. If not heeded, another call, impossible to describe, is given. In effect it says, "You are intruding on my territory, leave now!" Perhaps the invaders will leave, perhaps not. If they choose to stay and dispute the claim, quite a hassle may ensue. There is much squealing and chasing and the fight is on. The titmice go at each other feet first. They may meet in midair and thrust their feet forward, wings beating rapidly to hold them up. Generally, they come down to the ground. Sometimes, with toes locked together, they roll about on the ground, kicking and pecking and squealing until one gives up and beats a hasty retreat. After such a fight, the four titmice will flit wildly from shrub to shrub and tree to tree with much squealing and scolding. Eventually, tempers cool and the birds split, going deeper into their own territories. I have never seen one of these birds really hurt the other, but they seem to have established dominance and the bird out of place departs.

But they will return. However, future visits will be made when one pair has assured itself that the other is nowhere near. Ofttimes they utter a soft call as though awaiting a response and if no answer is given, back they come to the forbidden feeder. I recall an instance when the male of the backyard pair was singing loudly telling the world that he was marking off his boundary lines. The male of the frontyard pair was making an attempt to slip in to the seed feeder. The intruder gave out with the softest of calls as though he were trying to sound far away. It must have fooled the other bird, for he soon flew away.

Only twice have I known of a titmouse nest in or near my yard. Once, a pair had a nest in the metal pipe serving to hold up a basketball goal in a neighbor's yard. However, they did not have any luck as a pair of House Sparrows found the place and harassed them so that they left; the House Sparrows took over. Another time, some years ago, a pair built a nest in a birdhouse made from an old Chlorox bottle. The hole was too small for the sparrows to enter. It took the female titmouse many days to build the nest. She carried in a great deal of moss from the woods and creek banks. I wasn't certain when she began to incubate the eggs, but it was a very long time before I was aware that the young had hatched. Before entering the nest, whether to feed the babies or just check on them, the parent would perch on a nearby twig and give out a single, soft call note. The young birds stayed much longer in the nest than do American Robins or Cardinals I have watched. When they were ready to come out, they could fly well. I was amazed to note that they returned to the nest at night for several days after they made the first trip out. Long after the nest had been abandoned, I took down the bottle and opened it. To my surprise, I found two nests, the one on the bottom with two eggs in it. No wonder it was such a long time from the building of the nest until the eggs hatched! Apparently the first clutch was infertile, or perhaps had been allowed to get cold.

Since that time, I have not found the nests of my two pairs of titmice, but I always know when the females are incubating as the males come alone for handouts. I presume that they take something to the females on the nest. I can tell when the eggs have hatched, because then the two birds come together, again. This time, they refuse the hard peanuts, but want the soft balls of cornmeal and peanut butter I feed the other birds. They come for this several times during the day, but spend most of their time gathering small insects to feed the young. As with the other nesting birds I feed, the parents use my food as a filler for hungry mouths, or perhaps grab a bite for themselves to renew the spent energy used in raising a family. When the little ones are fledged, they accompany their parents for a snack now and then. Sometimes one of the little ones will catch on to this easy method of food-getting and come take some on its own. Mostly, though, they flit and frolic through the tree tops or hunch down on some twig, wings aquiver, begging to be fed by the parents. It seems an incredibly short time before they are on their own and gone. The older birds return for a nut now and then during the late spring and summer, but they feed mostly on the abundant insect life. During the molting season, when they are tired and uncomfortable, they come more often for an easy meal.

The first cold winds in the fall bring the titmice back to the feeders and for my nuts. I can always tell when a cold front is on the way by the stepped-up activity of the titmice. If I am indoors, then they come for sunflower seeds and can empty a feeder in short order. They hide the seeds in the same manner as they do with the nuts. While they learn much, they never seem to realize that there will always be food here and no need to store some away. It is one of those instinctive things they do which is built into the very fiber of their being.

The Tufted Titmice, along with the Carolina Chickadees, are very alert to all that goes on in their tree-top world. They become very agitated during spring and fall migration when the many small warblers invade their domain. Probably such an invasion of other small birds, all insect eaters, frightens my little friends. They must fear a wholesale loss of all their choice food. Like the Mockingbird after a flock of Cedar Waxwings in his favorite pyracantha bush, the titmice intend to drive the newcomers away as quickly as possible. They will accompany these warblers (or kinglets, creepers, and

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CBC Roundtable

... with Louis C. Fink

Food Storing by Red-breasted Nuthatches

On 5 October 1980, my pine woods were "invaded" by Red-breasted Nuthatches. For the first 2 weeks, they stayed in the woods, associating with chickadees and titmice. Then, unfortunately for my budget, they discovered the half-coconut that dispenses sunflower seeds. For 3 or 4 days, I was convinced that I had at least six birds coming to the feeder. It became apparent that they were taking seeds and storing them. I never saw them hack open a seed, and they made many more trips than the chickadees and titmice. They are pugnacious and tame, waiting at arm's length while I fill the feeder. I shall be interested to hear of other observations of this habit of storing seeds.—ADAIR M. TEDARDS, Box 157, Route 4, Easley, S.C. 29640.

Song and Garden Birds of North America (National Geographic Society, 1964) calls nuthatches "great rainy-day birds. They spend long hours taking provender from bird feeders and wedging it in walls, under shingles, or behind loose bark, despite the fact that the food supply is constantly replenished."

In *A Complete Guide to Bird Feeding* (Knopf, 1980), John V. Dennis describes the food-storing behavior of the White-breasted Nuthatch and then comments on the Red-breasted: "Hanging and tree-trunk feeders are to its liking, and it has the same habit as its larger relative of carrying off large quantities of food. An observer in Illinois reported seeing this nuthatch press seeds into the ground in much the same manner that squirrels use in disposing of food. Most of the food carried away by this nuthatch is stored in crevices in trees."

Mill Grove

John James Audubon was a superb painter but not much of a husband or provider. His only real home still standing in America is Mill Grove, not far from Valley Forge, where he developed his love for birds and also for Lucy Bakewell, who became his wife.

I visited the estate on a clear September morning and hiked some of the six miles of trails on the 130 acres. The mansion house is also open to the public; it was built in 1762, preserved since 1951 by the Montgomery County Commissioners. The interior walls contain murals by George M. Harding, which tell the story of Audubon's life. The attic is a work-room very much like the space Audubon used.

Mill Grove boasts a list of 175 species of birds. Of special interest are the activities of the Valley Forge Audubon Society, which publishes a list of more than 50 field trips, films, and meetings from September to January!

Clemmons State Forest

For a pleasant walk in the woods, this spot of 300 acres is recommended. There are two well-marked and well-maintained trails, one 0.6 of a mile, the other 2½ miles. There is a small pond fed by a stream, which one of the trails follows. For anyone interested in nature, the exhibits are satisfying—and imaginative. Many trees have small boards that identify the trees after you have made your guess and turn the sign over. Seven trees have small boxes with buttons. Press the button and the tree speaks. "I am a red cedar, planted here in 1940, but now suffering from root rot. . . ." A host of other displays are scattered throughout, including one on the value of the Pileated Woodpecker, complete with a stuffed bird.

Bird life was not extravagant, but a visit to Clemmons State Forest will tell most of us something about trees and their relationship with other living things. The Forest is between Garner and Clayton on "old US 70." This is a two-lane road just east of US 70—and not too clear on some maps.

Symposium on Biology of the Seaside Sparrow

On 1 and 2 October 1981, the North Carolina Biological Survey, the United States Fish and Wildlife Service, and the National Audubon Society will sponsor a symposium on the Biology of the Seaside Sparrow. About half of the invited speakers are already selected for a series of papers that will cover nearly all aspects of the Evolution, Distribution, Ecology, and Life History of the bird. Seaside Sparrows are a coastal species found from New York to Texas and live only in salt marshes. Much of the field work done on these sparrows has been conducted in North Carolina and Florida. Some of the speakers include Eugene Hester, Sandy Sprunt, Paul Sykes, Oliver Austin, Herbert Kale, John Hardy, John Funderburg, and Tom Quay. John Henry Dick has agreed to provide a painting showing all nine races of the species. The results of the sessions will be published by the North Carolina State Museum in a single volume. Additional information is available upon request from Thomas L. Quay, symposium editor, or David S. Lee, symposium coordinator, North Carolina State Museum, P.O. Box 27647, Raleigh, N.C. 27611 (919-733-7450).

Coastal Bird Conference

Southeastern Coastal and Estuarine Birds: A Conference-Workshop will be held 11-13 September 1981 near Georgetown, S.C., at the Field Laboratory of the Belle W. Baruch Institute for Marine Biology and Coastal Research, University of South Carolina. The meeting will focus on a total ecosystem approach and will assemble past and present federal, state, and academic researchers from Delaware, Maryland, Virginia, North Carolina, South Carolina, Georgia, and Florida. Interested people are invited to present the results of their research, in either a conventional or a poster format. Preliminary results and presentations by graduate students are especially welcome, as are papers on avian prey bases and avian competitors. We hope the conference will serve as an information exchange as well as a forum on current coastal and estuarine bird research. Questions concerning presentations and graduate student awards (room and registration fee waivers) should be directed to KEITH L. BILDSTEIN, program chairman, Department of Biology, Winthrop College, Rock Hill, S.C. 29733 (803-323-2111). Information on registration and housing will be mailed to A.O.U., C.O.S., and W.O.S. members in the Southeast. Others may obtain this mailing by writing BOBBIE CHRISTY, local chairman, Baruch Field Laboratory, P.O. Box 1630, Georgetown, S.C. 29440 (803-546-3623).

CBC Members in Print

Bird — Habitat Associations on Southeastern Forest Lands is a report written by HARRY E. LeGRAND JR. and PAUL B. HAMEL, of Clemson University, for the USDA Forest Service Southeastern Forest Experiment Station. The primary purpose

(Continued on Page 28)

General Field Notes

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First Record of Black-tailed Godwit from North Carolina

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On 26 December 1979, during the annual Bodie-Pea Island, N.C., Christmas Bird Count, a Black-tailed Godwit (*Limosa limosa*) was found by Hughes on the Bodie Island Lighthouse pond. The bird was subsequently seen and photographed by many observers until 12 January 1980 when the pond was flooded, apparently causing most of the shorebirds to move elsewhere. The godwit was not relocated.

Later on the count day Tove, accompanied by Kevin Hintsa, John Fussell, and Bill Moffitt, went to the pond and slowly worked toward the back side. At approximately 1530, they found a godwit feeding near some American Avocets. The bird was studied

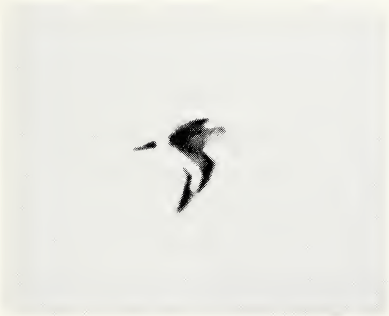

Fig. 1. A Black-tailed Godwit was photographed from above at Bodie Island, N.C., 27 December 1979. Note the black tail, white rump, broad white wing stripe, and black wrists.

Fig. 2. In another view of the same Black-tailed Godwit shown at left, note the white under wing and axillars. (Both photos by Michael Tove, 27 December 1979, Bodie Island, N.C.).

through a scope until it flew, whereupon it was identified as a Black-tailed Godwit. Identification was made on the basis of the black tail and white rump (Fig. 1) and the white axillars and wing linings (Fig. 2).

Lewis (1978) described some of the major differences in plumage between Black-tailed and Hudsonian Godwits. Having had prior (and subsequent) experience with both species, we wish to elaborate a bit more the differences between them. There are two major differences in plumage: (1) Wing lining and axillars are white in Black-tailed, black in Hudsonian. (2) Upper wing of Black-tailed has a broad, bold white (Willet-like) stripe along the basal portion of the primaries and secondaries; primary coverts are blackish and contrast with lighter, brownish-gray secondary coverts. Upper wing of Hudsonian has a narrow, sometimes indistinct, grayish-white wing stripe at the very base of the primaries and secondaries; upper wing coverts are uniformly colored.

Unfortunately, these differences are of little help unless the bird is seen in flight. However, there are other, albeit subtler, differences between the species. Hudsonians have bills that are slightly to moderately upturned. Conversely, Black-taileds have nearly or completely straight bills. However, females of both species have longer bills with a little more curvature than males. Thus, a female Black-tailed Godwit may exhibit some bill curvature, but generally less than that of a male Hudsonian.

Baird (1967) noted that Black-tailed Godwits have blackish legs and Hudsonians have blue. He also described breeding plumages as "rusty orange on chin, neck and upper breast; whitish unmarked belly, flank and undertail coverts" for the Black-tailed and "extensive chestnut underparts; barred undertail coverts" for the Hudsonian. We cannot wholly support these distinctions as good criteria for field identification. Reliably differentiating (dark) blue from black legs in the field is a risky task. Also, Black-taileds in breeding plumage are heavily barred on the flanks, and the white of the belly and under tail is narrow and obscure, making it hard to see in the field. Hudsonian Godwits have completely, or almost completely rust-orange underparts, which are more brick-colored than in the Black-tailed. The breast and upper breast of a Black-tailed Godwit are cinnamon-orange, which gives way to dark barring on the flanks and sides of the belly. In addition, the back of a Hudsonian Godwit is blacker than that of the Black-tailed.

This sighting constitutes the fifth record of Black-tailed Godwit from the contiguous United States. Previous records include: one in Massachusetts, April 1967 (Baird 1968); one in New Jersey, May-June 1971 (Am. Birds 25:717); one in Pennsylvania, October 1979 (Am. Birds 34:146, Cassinia 58:22-23); and one seen by Hughes 27 February 1971 at Pea Island and originally misidentified as a Hudsonian. Although all the appropriate field marks had been noted, none of the observers of the February 1971 bird considered Black-tailed a possibility because it was not listed in any of the North American field guides. Recently, this record was mentioned in *American Birds* (34:264). The 1979 North Carolina and Pennsylvania records are likely to be of the same individual.

Fortunately, the Black-tailed Godwit is illustrated, along with several other Eurasian shorebirds that may eventually occur in the Carolinas, in the newly released Peterson bird guide for eastern North America. Nonetheless, one still must consult European guides for flight patterns and discussion of field marks.

LITERATURE CITED

Baird, J. 1968. A United States record of the Black-tailed Godwit. Auk 85:500-501.

Lewis, B. 1978. A record of the Hudsonian Godwit in South Carolina and a comparison with the Black-tailed Godwit. Chat 42:82-83.

Effects of Cool Weather on Nestling Behavior and Development in the Yellow-billed Cuckoo

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7 January 1981

In an earlier paper (Potter 1980), I reported an incubation period of 9 days and a nestling period of 7 to 8 days for Yellow-billed Cuckoos (*Coccyzus americanus*) hatched in my yard near Zebulon, N.C., in 1973. The young birds burst their feather sheaths on the sixth day after hatching, which is the normal time acording to Bent (1940). Vera Campbell (pers. comm.) noted a 10-day nestling period for two young fledged from a nest at Jacksonville, N.C. I suggested that the parents' lengthy absences from the nest once the first two nestlings require frequent feedings might explain the longer incubation and nestling periods reported by some observers (Bent 1940, Hamilton and Hamilton 1965). Development of the young in a nest studied at Zebulon from 28 May through 15 June 1980 indicates that unseasonably cool weather during the nestling period probably delays bursting of sheaths and departure from the nest.

On 27 and 28 May I heard cuckoos calling frequently from the vicinity of the site where a pair copulated on 2 July 1979 (Potter 1980). Repeated visits to the area revealed no nest-building activity, although an unattended nest was discovered on 27 May. The afternoon of 28 May, I noticed an adult cuckoo perched on a low limb near the unoccupied nest. The bird drooped its wings and raised its tail over the back in a distraction display frequently employed in nest defense (Hamilton and Hamilton 1965, Potter 1980). The bird raised and lowered its tail several times before flying out of sight. At 2030 EDT I found a cuckoo sitting on the nest.

The nest site was in a small, dense stand of pines (*Pinus* sp.) about 20 to 25 years old. This stand is separated from nearby woodlands by the dam for a small farm pond, the driveway to my house, and a powerline right-of-way. The nest was about 5 m above ground on a tangle of Muscadine Grape (*Vitis rotundifolia*) vines surrounding a horizontal limb of a pine tree on the edge of the stand facing the dam. The site is approximately 20 m from the place where copulation occurred in 1979 and about 50 m from the 1973 nest site (Potter 1980).

The first egg hatched during the afternoon of 6 June, and the second one hatched before 1655 EDT on 7 June. The incubation period for each of these eggs appears to have been 9 days. There was no evidence of additional eggs in the nest.

Although the tangle of vines about the nest prevented close observation of the care of the young, I believe it was essentially the same as in the previously reported nesting. Therefore, I expected the chick that hatched on 6 June 1980 to burst sheaths on 12 or 13 June. However, that was not the case.

On 13 June, the seventh day after hatching for the older chick, I noted that the parents were no longer removing fecal sacs and discovered white splashes of droppings on the leaves below the nest. One nestling repeatedly gave a series of five low "kuks" between feedings, but neither made begging sounds when an adult approached the nest. No signs of emerging feathers were noted on 13 June or the morning of 14 June. (No observations were made the afternoon of the 14th.)

By 1000 EDT on 15 June, its ninth day after hatching, the older chick had burst sheaths on most of its flight and contour feathers. The younger nestling had burst sheaths on most of its flight feathers by 1125 EDT, but nearly all of its contour feathers were still encased in sheaths. Both nestlings still begged for food silently. By 1230 EDT the younger had begun to give a series of five "kuks" repeatedly between feedings. By 1310 EDT the younger bird, with feathers of back and underwings still in quills, was in the vines near the nest, but the older one remained in the nest. At 1430 EDT the parents were tending both young as they fluttered from branch to branch in trees 3 to 10 m from the nest. Thus the young burst their sheaths and left the nest on their eighth and ninth days after hatching, and the period from onset of incubation to departure from the nest lasted 18 days for the older of the two, 17 days for the younger.

I attribute the delayed emergence of feathers from sheaths and the slightly extended nestling period to the unseasonably cool weather from 9 through 14 June. High and low temperatures, in degrees Fahrenheit, for 8 through 15 June (U.S. Dept. Comm. 1980) were: 8 June 90/77, 9 June 90/53, 10 June 78/57, 11 June 86/60, 12 June 76/54, 13 June 82/42, 14 June 77/51, and 15 June 84/72. At 0900 EDT on 14 June my outdoor thermometer registered 65° F, and the nestlings were not being brooded. Although the parents seemed to have no problem finding an adequate supply of prey items, the growth and development of the young birds appeared to slow down once the daytime brooding was reduced or halted. The quill-covered young birds mostly remained huddled together in the nest cup between feedings and were generally much less active than the young in the 1973 nest. This behavior apparently enabled the nestlings to conserve energy and maintain body temperature without benefit of daytime brooding during several days of unseasonably cool weather.

LITERATURE CITED

Bent, A.C. 1940. Life Histories of North American Cuckoos, Goatsuckers, Hummingbirds and Their Allies. U.S. Natl. Mus. Bull. 176.

Hamilton, W.J., III, and M.E. Hamilton. 1965. Breeding characteristics of Yellow-billed Cuckoos in Arizona. Proc. Calif. Acad. Sci. (4th ser.) 32:405-432.

Potter, E.F. 1980. Notes on nesting Yellow-billed Cuckoos. J. Field Ornithol. 51:17-29.

U.S. Department of Commerce. 1980. Daily weather maps, weekly series, June 2-8 and June 9-15.

Winter Records of the Grasshopper Sparrow in the North Carolina Sandhills

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26 December 1980

The winter status of the Grasshopper Sparrow (*Ammodramus savannarum*) in North Carolina is not clearly understood. It apparently winters irregularly in the piedmont and coastal plain. Preferred winter habitats are weedy old fields, pastures, broomsedge fields, and similar habitats. Most published winter records for North Carolina are from the last half of December. However, this species is difficult to locate during the nonbreeding season. It does not flock with other birds, and when flushed, flies only a short distance before landing and running. Such "runner" sparrows are notoriously difficult to observe. Thus, the Grasshopper Sparrow may be more common in winter than realized.

Prior to 1978, only one record for this species existed for the Sandhills region in south-central North Carolina. M.P. Skinner saw one on 1 March 1926, but commented that "it may winter in the Sandhills" (Skinner and Achorn 1928, A Guide to the Winter Birds of the North Carolina Sandhills, Science Press, Lancaster, Pa.). This record probably represents a wintering individual, but it could be an early spring migrant.

On 12 November 1978, a Grasshopper Sparrow was seen in the Sandhills Game Lands, about 5.8 miles NW of Hoffman, Richmond County, N.C. Observers were

Roberta Blue, Dick Repasky, Tim Stamps, and Jay Carter. The sparrow was flushed five times from a small field in Longleaf Pine (*Pinus palustris*)—Turkey Oak (*Quercus laevis*) woods. It then perched in a small oak and was positively identified by all observers. The field has vegetated with broomsedge (*Andropogon* sp.) and dead weeds.

On 7 February 1979, a Grasshopper Sparrow appeared in the yard of Marion Jones in Pinehurst, Moore County, N.C. It was seen there irregularly through 17 March. Recognizable photographs were taken by Tom Howard. This bird was in very atypical habitat. The yard was forested with pines, and evergreen shrubbery was around the house and patio. Some old fields with broomsedge were a few hundred yards away, but appeared too sparsely vegetated to be good habitat. The sparrow was first noticed during a snow and ice storm on 7 February. It fed with other ground-feeding species on a concrete patio where birdseed had been scattered. Later it came when the feeding area was less crowded, and was often alone. Although it preferred to feed on the floor of the patio, it also took seed spread on a patio bench that sat next to the house. The bird normally appeared first under the bench and gradually moved to seeds on the concrete, seldom going more than 5 or 10 feet from the bench and evergreen shrubbery. Sometimes, especially if the sun was out, it hopped up on the bench and sat quietly for a few minutes. It was seen in a tree only once, and never on nearby pole feeders.

Although the Grasshopper Sparrow seen in November 1978 may have been a late migrant, the one in February 1979 was undoubtedly a winter storm refugee. It is noteworthy that the latter bird lingered in atypical habitat after the severe weather passed. The Grasshopper Sparrow may winter in the Sandhills more commonly than the three records indicate, but until there are more published records, it must be considered very rare in the winter months.

BACKYARD BIRDING

(Continued from Page 10)

nuthatches) from tree to tree until they are well out of the range considered by the titmice as their own property and hunting grounds.

The most interesting reaction to strangers from the sky, however, is the way the titmice respond to hawks. Two kinds of hawks may turn up in our area, mostly in fall and winter. The large hawks, buteos, such as the Red-tailed, pose little threat to the bird life. Except for Blue Jays and crows, their passage goes virtually unnoticed by the small birds. But that other kind of hawk, the accipter, such as a Sharp-shinned or Cooper's, which prey on birds, causes panic and instant silence. Now how these little birds know the difference in the hawks, even when it may be very high in the sky, beats me. But they do know! I have learned to look for a sharpie when all of a sudden a titmouse lets out with the highest, thinnest shriek it can make. Everything lets out with a cry of alarm and dives for the nearest cover. In a second or two following the alarm and great disappearing act, sure enough, here comes the little hawk flying over. Sometimes it is high; sometimes at tree-top level. It flies so fast and sure, even through the trees, that one cannot help but admire it. The grace and agility of the hawk, however, is unappreciated by the little birds who fear it so. Should a bird find itself unable to reach good cover, it simply "freezes" to the twig on which it is perched.

Once I was standing under a dogwood tree, tossing nuts to my titmouse friends when the Sharp-shinned Hawk flew over, landed in the top of a nearby sweetgum tree and proceeded to scan the area for his dinner. The alarm had been given by the titmouse I was feeding at the moment. He was afraid to move from his perch over my head. I watched him as he sat so still; not a feather ruffled, not a muscle moved. His eyes were fixed on that hawk. Perhaps the hawk saw me or decided that no easy prey was in sight. He left his perch and flew swiftly away. The moment he took off, the titmouse over my head let out some of the most terrified screams (soft, high, and thin) I have ever heard. He "cried" like this from the time the hawk left its perch until it was long gone—perhaps a full minute. He continued to sit on his perch, immobile, for some minutes longer. It was as though he had seen the most horrible sight in his life and he could hardly stand it. The other birds had come out of hiding and begun to feed again for some time before the little titmouse could shake off the terrible fear of what he had seen.

Nine times out of ten, when danger appears on the scene, be it hawk or cat, the titmouse is the first bird to see it and alert the others. The Blue Jay, quite vocal about cats, buteos, owls, and crows, rarely emits a sound when the Sharp-shin flies over, but dives into the nearest shrubbery. The titmouse is usually the last bird to resume normal activity when an accipiter has passed by, keeping a sharp eye on the sky and tree-tops lest it should double back.

Little birds, such as titmice, chickadees, and wrens, have a rather short life span. Few, if any, would die of old age, for life is full of danger. There are animal predators, disease, parasites, injury, and air rifles to snuff out their lives. Only the strong and alert survive.

Knowing these titmice has enriched my life immeasurably. Sometimes, they light on a branch so near to me that I could reach out and touch them—not really, for they would be gone in a flash. I wonder if, perhaps, I might coax one of them to take a nut from my hand. I do not really want to try this, for it is not wise to let a wild bird become too tame, for its own safety. All people do not love birds and some might even become frightened if a little fellow suddenly landed on head, shoulder, or arm to look for food. Others might harm them in some way. While I believe these four titmice recognize me, individually, as a separate person, all birds do not seem to distinguish one human from another. The reason I think my titmice friends do know me is that they come close and beg for nuts even when I encounter them some distance from my yard—in the woods, along the creek, or on a street some blocks away.

These four little birds have brought me much pleasure as they go about the business of living free. I have learned much about them, and hope to discover more. Since they are a fairly common bird all over the Carolinas and are easily attracted to feeders, I commend to all who read this—find and make a friend of a titmouse. You will never regret it.—GTW

BRIEFS FOR THE FILES

HARRY E. LeGRAND JR.

(All dates 1980 unless otherwise indicated)

HORNED GREBE: One seen at Beaufort, N.C., in May was noted there through 20 June by John Fussell and Dana Carter.

PIED-BILLED GREBE: Merrill Lynch reported an adult with six young on 24 June in a Carolina bay near Wagram, Scotland County, N.C., possibly a first nesting in the state in that habitat. One in breeding plumage was notable on the White Oak River, along the Onslow-Jones County line, N.C., on 19 June (Mike Alford).

GREATER SHEARWATER: Eight were rare at Cape Lookout, N.C., on 26 June, as seen by Skip Prange, and John Fussell found eight dead on the beach at nearby Shackleford Banks, along 3.5 miles of beach, on 7 July.

SOOTY SHEARWATER: One was observed by John Fussell at Atlantic Beach, N.C., on 13 June, after 3 days of NE winds.

AUDUBON'S SHEARWATER: Observers in the Beaufort Inlet—Atlantic Beach area noted individuals from shore on many occasions from 21 to 27 July, with an excellent count of 60 on 23 July (Brainard Palmer-Ball). Ricky Davis and Bud Needham saw two Audubon's flying just off the beach on Ocracoke Island, N.C., on 26 July.

WILSON'S STORM-PETREL: Skip Prange noted petrels in the bight at Cape Lookout several times in June, with a peak of 14 on 14 June.

WHITE-TAILED TROPICBIRD: One was seen by Duncan Dawkins approximately 50 miles SE of Cape Lookout in June.

ANHINGA: A pair seen at a pond near Fayetteville, N.C., on 16 June by M.E. Whitfield and Tim Playforth was outside the known breeding range; however, a female seen by Merrill Lynch at Catfish Lake in Croatan National Forest, N.C., on 9 July might have been a breeder.

CATTLE EGRET: John Cely reported a new rookery, containing 1200 nests, approximately 15 miles E of Columbia, S.C., in July.

SNOWY EGRET: A good post-breeding count was six birds seen by Dennis Alwon at Jordan Reservoir in eastern Chatham County, N.C., on 10 August.

LOUISIANA HERON: Single birds were noted in the piedmont in July and early August at Winston-Salem, N.C. (Ramona Snavely et al.), Jordan Reservoir (Bob Lewis, Bill Wagner), and Clemson, S.C. (Harry LeGrand).

YELLOW-CROWNED NIGHT-HERON: Rare for the piedmont was a nest, with an adult in attendance, seen on 24 June along the Neuse River in extreme eastern Durham County, N.C., by Bobby Klutz. A helpless young was found on the ground near the Neuse River in the Kinston, N.C., area in late July (fide John Fussell). Other records that suggested breeding were five adults and an immature seen on 2 June by Tom Haggerty in extreme southern Bertie County, N.C.; two adults and a juvenile noted by Merrill Lynch and Julie Moore at Elkton Swamp near Clarkton, N.C., on 19 June; and two adults and an immature seen 5 miles away from the latter site at Brown Marsh on 20 June (Lynch and Moore). In the piedmont, up to three immatures were seen at three locations: Winston-Salem on 4 July (Ramona and Harry Snavely), Jordan Reservoir from 5 to 26 July (Bob Lewis, Allen Bryan), and Pendleton, S.C., on 19 and 27 July (Harry LeGrand).

GLOSSY IBIS: As many as four birds were present at Jordan Reservoir from 15 to 24 July, as reported by Bob Lewis and Bill Wagner.

WHITE IBIS: Perhaps record piedmont counts were the ibises noted by Bob Lewis et al. at Jordan Reservoir this summer: 80 on 11 July, 100+ on 2 August, and 140+ on 14 August. Other notable records were 25 seen in flight by Allen Bryan in eastern Guilford County, N.C., on 29 June, five noted by Jay Carter near Raeford, N.C., on 10 July, and up to four at Winston-Salem from 31 July to early August (Charles Frost, Harry Snavely, Ramona Snavely).

AMERICAN FLAMINGO: Ricky Davis and Bud Needham observed one near Ocracoke, N.C., on 10 June, and possibly the same bird was noted at Morgan Island, near Cape Lookout, on 15 July (Keith Voges) and 22 July (John Thompson, and near Cedar Island on 26 July (Roy Styron).

MALLARD: A female with eight ducklings was reported by Merrill Lynch on a Carolina bay near Wagram, N.C., on 24 June.

BLUE-WINGED TEAL: A nesting of this species was noted near Fairplay, Anderson County, S.C., during the summer (fide Stanlee Miller), and John Fussell had a nesting record (five young plus adults) at Brant Island, in Fort Macon State Park, N.C., in June. A male was unusual at Huntington Beach State Park, S.C., on 12 June (P.J. Crutchfield, Kevin Mason), and seven were very early at Jordan Reservoir on 2 July (Bob Lewis).

RING-NECKED DUCK: Individuals were seen by Allen Bryan on 1 and 3 July near Burlington and by R.J. Hader on 19 July at Beaverdam Reservoir in northern Wake County, N.C.

WHITE-WINGED SCOTER: An injured scoter was notable at Kiawah Island, S.C., on 22 June, as seen by Steve Compton and Gardner Miller.

RED-BREASTED MERGANSER: An individual was rare at Fort Moultrie, in the Charleston, S.C., area on 22 June, as noted by Perry Nugent.

SWALLOW-TAILED KITE: One was seen flying over North River marsh in central Carteret County, N.C., on 4 June by Ted Best.

MISSISSIPPI KITE: A good population was again present in eastern Halifax County, N.C., near the Roanoke River, as witnessed by a count of 14 by Ed Reimann on 13 June, and an adult was seen there by Merrill Lynch on 20 July.

SHARP-SHINNED HAWK: Rare in summer in North Carolina were single hawks noted by Merrill Lynch and Julie Moore on 30 June along the New River at the Ashe-Alleghany County line and by Mike Tove near Henderson on 6 July.

COOPER'S HAWK: Merrill Lynch observed single adults near Eure, Gates County, N.C., on 17 June and near Lilesville, N.C., on 1 July.

BROAD-WINGED HAWK: Most unusual near the North Carolina coast in summer were an adult seen and heard south of Shallotte by Ricky Davis on 22 June and one noted by Larry Crawford between Swansboro and Jacksonville on 29 and 31 July. Other sightings of interest in that state were one at Arcola, Warren County, on 9 June (Merrill Lynch, Julie Moore), one east of Maxton on 19 June (Jay Carter), one at Fayetteville on 23 June (P.J. Crutchfield), and several in eastern Anson County on 1 and 2 July (Merrill Lynch).

BALD EAGLE: An active nest was reported at Colington, Dare County, N.C., this spring (fide Lance Peacock), and single adults were observed at Alligator River in western Dare County on 29 July by Dave Lee and at a pond in the southern part of Croatan National Forest, N.C., on several dates in June and July (fide John Fussell).

MARSH HAWK: Individuals in eastern North Carolina at Cedar Island on 2 June (John Fussell) and in early June on the Dare County mainland (Dave Lee) might have been breeders. A very early migrant was observed by Johnnie Payne on 4 July at Jordan Reservoir.

OSPREY: Rather far inland was an active nest seen by Merrill Lynch and Wayne Irvin on 1 June on Holiday Island in northwestern Chowan County, N.C.

SANDHILL CRANE: The first record for the North Carolina piedmont was an adult seen by Bob Lewis at Jordan Reservoir on 8 July. It was seen the following day by Allen Bryan and again on 10 July by Bill and Margaret Wagner.

SORA: One seen well by Bob Lewis at Jordan Reservoir on 28 July was probably a very early migrant.

BLACK RAIL: Bob Lewis flushed an individual in the Farrington area of Jordan Reservoir on 3 June, and he had one calling in response to a tape in the same area on 10 June.

PURPLE GALLINULE: Very rare for the mountains was one in emaciated condition captured by hand near Hazelwood, N.C., on 18 April by Andrew Bryan. The bird was later released.

PIPING PLOVER: This species breeds south to Beaufort Inlet, N.C.; thus, quite unusual was a territorial pair seen by Ed Reimann at the east end of Sunset Beach, Brunswick County, N.C., on 16 June.

COMMON SNIPE: Completely out of season were two birds noted by Bob Lewis on 10 June at Jordan Reservoir.

LONG-BILLED CURLEW: One was rare, though not unexpected, at Ocracoke, N.C., on 14 July, as seen by Ricky Davis, Bud Needham, and Jim Parnell.

WHIMBREL: Notable in early summer was one on 12 June at Huntington Beach State Park, S.C. (P.J. Crutchfield, Kevin Mason).

UPLAND SANDPIPER: Very rare inland in fall was an individual seen by Bob Lewis on 7 August at Jordan Reservoir and again on 11 August by Bill and Margaret Wagner. A report of one there on 16 August, by many observers, may have been the same bird. An excellent count of 25 was noted by Evelyn Dabbs at Shaw Air Force Base in Sumter County, S.C., on 2 August.

WILLET: Noteworthy inland was one seen by Bob Lewis at Jordan Reservoir on 28 July.

GREATER YELLOWLEGS: Most unusual in June was an individual seen on the 10th of that month at Jordan Reservoir by Bob Lewis.

LESSER YELLOWLEGS: Very early fall arrivals were reported by Ramona Snavely et al. at Winston-Salem on 26 June and by Bob Lewis at Jordan Reservoir on 2 July.

PECTORAL SANDPIPER: One near Fort Macon State Park on 6 July, as noted by John Fussell, was a rather early fall migrant.

CURLEW SANDPIPER: An exciting find was an individual in full breeding plumage near Southport, N.C., on 10 July, as observed by Jay Carter, Jim Parnell, Ricky Davis, Bud Needham, and others.

DUNLIN: Completely unseasonable was a breeding-plumaged bird at Jordan Reservoir, where Bob Lewis noted it on 29 June and 2 July.

SHORT-BILLED DOWITCHER: The first arrival at Jordan Reservoir was noted by Bob Lewis on 9 July, rather early for an inland site.

LONG-BILLED DOWITCHER: Uncommon for the Sunset Beach area were six to eight noted there by P.J. Crutchfield and Kevin Mason on 17 August.

SANDERLING: Very rare inland in spring were five at the sewage treatment plant in Winston-Salem on 22 May, as seen by Bob Witherington, Ramona Snavely, and Charles Frost; and two were noted there on 24 May by Evelyn Dabbs and Ramona Snavely.

STILT SANDPIPER: Early along the North Carolina coast were single birds at Shackleford Banks on 7 July (John Fussell) and near Southport on 9-10 July (Jay Carter, Jim Parnell, et al.). One to three were present at Jordan Reservoir from 21 July to mid-August (many observers).

BLACK-NECKED STILT: Six stilts at North River marsh in Carteret County on 22 June, as reported by John Fussell, probably were breeding birds.

WILSON'S PHALAROPE: One in winter plumage was seen by Ricky Davis at the north end of Ocracoke Island, N.C., on 11 June. Inland, rare were single birds observed by Wayne Irvin near Raleigh on 22 July and by Bob Lewis and Harry LeGrand at Jordan Reservoir on 14 August.

POMARINE JAEGER: A first July record for North Carolina was a dark-phase bird that flew directly over John Fussell at Shackleford Banks on 7 July.

CASPIAN TERN: R.J. Hader found one, freshly dead, at Beaverdam Reservoir on the early date of 19 July.

BLACK TERN: One was very early at Jordan Reservoir on 20 June (Bob Lewis), and others seen inland were four at Lake Cammack on 22 July (Allen Bryan), five near Fayetteville on 23 July (P.J. Crutchfield), and one near Raleigh on 23 July (fide R.J. Hader). Three were somewhat early at Folly Beach, S.C., as reported by Gardner Miller on 13 July.

YELLOW-BELLIED SAPSUCKER: A rare nesting report, especially for the northern half of the North Carolina mountains, was that of adults seen feeding young at a nest at Moses Cone Memorial Park, near Blowing Rock, on 22 June by Tom Haggerty.

RED-COCKADED WOODPECKER: Merrill Lynch had a conclusive breeding record at an established site near Eure, Gates County, N.C., in mid-June, and he saw an adult depart a cavity approximately 0.5 mile S of the above locality on 17 June. He also observed two adults and two juveniles near Como in Hertford County, N.C., on 18 June. This species is rare and local in the state's northern coastal plain.

SCISSOR-TAILED FLYCATCHER: Kay Sisson reported on the observation of two individuals of this species in central South Carolina. One was seen along SC 261 in the vicinity of Poinsett State Park by Tony Veccio on 20 July, and another was noted by Virginia Barron for 3 days in May 1972 in southeastern Richland County.

WILLOW FLYCATCHER: Tom Haggerty found a nest with four eggs along the Watauga River near Valle Crucis, N.C., on 21 June. Ramona Snavely et al. noted singing individuals in North Carolina's piedmont section at Roaring River in Wilkes County on 8 June, at Oak Hollow Reservoir in High Point on 10 June, and at the sewage treatment plant in Winston-Salem on 26 June.

HORNED LARK: Noteworthy for the upper coastal plain were a pair seen and heard on several occasions, through 21 July, near Mayesville, S.C. (Evelyn Dabbs), and one heard singing near Raemon in Robeson County, N.C., on 19 June (Jay Carter).

TREE SWALLOW: One seen by Jay Carter on 10 July near Southport was a rather early fall migrant.

BANK SWALLOW: One was early near Southport on 9 and 10 July, as noted by Jay Carter.

CLIFF SWALLOW: Allen Bryan observed seven at Lake Cammack in June, and during the same month he saw two birds at a bridge 3 miles away; nesting is likely at both places. At least nine nests and 15 adults were counted at Clemson, S.C., in early June by Harry LeGrand.

PURPLE MARTIN: Large post-breeding concentrations were noted in the North Carolina coastal plain by P.J. Crutchfield (peak of 1500 near Fayetteville on

14 July) and by Merrill Lynch (1000+ at Catfish Lake on 9 July and 1800 at Suggs Millpond in Bladen County on 22 July).

COMMON RAVEN: Merrill Lynch reported a pair of ravens at Bat Cave, Henderson County, N.C., on 7 August, and another pair at Bluff Mountain in Ashe County, N.C., on 29 June and 18 July.

SHORT-BILLED MARSH WREN: One was noted singing on 10 August by Dennis Alwon at Jordan Reservoir, and Harry LeGrand and Bob Lewis heard two calling there on 14 August.

SOLITARY VIREO: Along the eastern edge of the breeding range was a singing male seen just southwest of Littleton, N.C., on 8 June by Merrill Lynch.

SWAINSON'S WARBLER: Although this species has been noted previously in summer at Walker's Mill Pond near Newport, N.C., John Fussell observed an adult feeding a young bird there on 5 July.

WORM-EATING WARBLER: A good count for the coastal plain was three singing males in western Gates County, N.C., noted by Merrill Lynch on 12 June. He has found the species in that area every summer since 1972.

BLUE-WINGED WARBLER: Early migrants were reported from Poinsett State Park, S.C., on 18 July (Bryan Glover, fide Kay Sisson), and at Fayetteville on 11 August (P.J. Crutchfield).

BREWSTER'S WARBLER: Mike Tove observed a male, with a yellow patch on its breast, singing a Blue-winged Warbler song near Fontana Village, Graham County, N.C., on 3 May.

MAGNOLIA WARBLER: Joshua Lee reported that he saw and heard an individual singing in June "a few years back" at Richland Balsam, N.C., along the Blue Ridge Parkway. This is the farthest south that the Magnolia has been noted during the breeding season in the southern Appalachians, but this mountain has been worked extensively in recent years without any further reports of the species.

WILSON'S WARBLER: An adult male seen at Graveyard Fields, in southern Haywood County, N.C., on 19 July by Sarah Harrison was extremely early. The round black cap was clearly noted.

NORTHERN ORIOLE: An adult pair was seen feeding young at a nest along the Watauga River near Valle Crucis, N.C., on 21 June by Tom Haggerty. Possibly breeding were a male observed by Allen Bryan near Burlington on 22 June and a female seen by Pat Culbertson, Barbara Page, and Ramona Snavely on 13 June at Tanglewood Park near Winston-Salem.

SCARLET TANAGER: There were three reports of this species during the summer from Gates County, N.C.: one singing near Eure on 1 June (Harry LeGrand), three singing males in the western part of the county on 12 and 17 June (Merrill Lynch), and two males heard at Merchants Millpond State Park on 19 July (Tom Haggerty).

BLACK-HEADED GROSBEAK: Highly unusual for the summer months was a male seen eating sunflower seeds at the feeder of Mrs. John Kelly in Greenville, S.C., on 14, 15, and 21 July (fide Pat Waller).

PAINTED BUNTING: These buntings have a very spotty and poorly known breeding distribution in South Carolina's inner coastal plain; thus, notable was a report of a family group seen at a feeder 6 miles east of Sumter this summer (fide Evelyn Dabbs).

HOUSE FINCH: As many as 40 were seen by Tom Hallowell at his feeders at Hendersonville, N.C., from 10 January to 1 February. Carol Hamilton and Mary Pyne saw adults and young at two locations in mid-July at Durham, N.C.

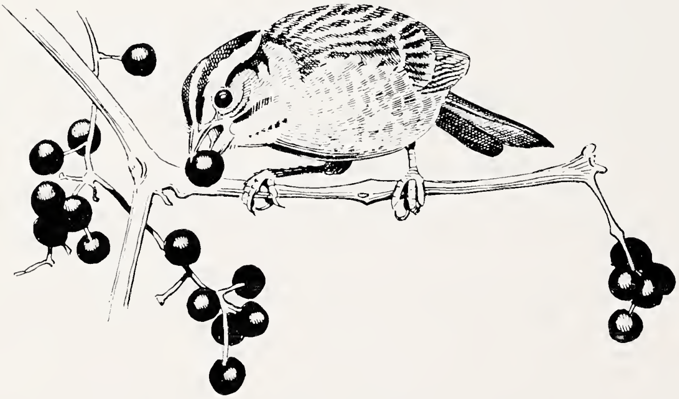
GRASSHOPPER SPARROW: One seen and heard in a grassy field next to Beech Creek bog, western Watauga County, N.C., on 7 June by Tom Haggerty was at a very high elevation (4600 feet) for this species. Far out of range were three observed singing at the New Hanover County airport near Wilmington, N.C., on 28 July by Ricky Davis. This species breeds sparingly along the extreme western edge of the state's coastal plain, but nowhere near the coast.

BACHMAN'S SPARROW: One to three were noted on several dates this summer at Fort Bragg near Fayetteville by P.J. Crutchfield.

SONG SPARROW: John Fussell observed five birds, including three singing males, on 3 June at Portsmouth, N.C., at the southern limit of breeding for the Atlantic race.

CORRIGENDUM: A Golden Eagle near Burlington, N.C., reported in *Chat* 44:47, was actually observed on 24 October, and not in September.

CORRECTION: One line of type was inadvertently omitted from the paper "Bird Sightings Associated with Hurricane David" by John O. Fussell III and Alice Allen-Grimes (Chat 44:89-100). In the Bridled Tern section (p. 95), the first three sentences of the third paragraph should read: "Bridled Terns also returned offshore quickly, no healthy individuals being seen on *land after the sixth. However, they did linger a little longer than the Sooty Terns. On the* morning of the sixth, virtually all closely approached birds at Southport and Wrightsville Beach were Bridled Terns. . . ." Please correct your copy by adding the words italicized above as the second line of the third paragraph under the heading of Bridled Tern.—EFP



BOOK REVIEWS

BIRDS OF THE CAROLINAS

Eloise F. Potter, James F. Parnell, and Robert P. Teulings. 1980. The University of North Carolina Press, Chapel Hill. 337 color photos, 1 drawing. 408 p. Index. Hardcover $15.

First I should state that the only reason I am reviewing this book is an obvious one. I am one of the few ornithologists in the Carolinas who was not personally involved in the book. The acknowledgment section of *Birds of the Carolinas* reads like a "who's who" of bird students and nature photographers of the region. The text and photos reflect the interest and spirit of all the amateurs and professionals who donated both excellent color photographs and time to this book. In keeping with the overall spirit behind this unique book, the authors assigned a significant percentage of the royalties to Carolina Bird Club.

The book serves some functions not immediately apparent to readers who have not had a long involvement in the study of local birds. It is up-to-date, presents a considerable amount of otherwise unavailable information, and represents an excellent, precise summary of all the field knowledge accumulated since the 1942 edition of *Birds of North Carolina* and the 1949 *South Carolina Bird Life*. Therefore, it will serve as a solid building block for future, more technical books on the ornithology of the two states.

It probably should be stated that the authors envisioned this text as a popular coffeetable book that would supplement current field guides. Their attention to accuracy and completeness makes it far more than that. The care, energy, and meticulous attention to detail that the authors put into *Birds of the Carolinas* is obvious and places it many steps above the countless commercial bird books that are appearing on the growing market.

The book, of course, speaks for itself and most readers of the *Chat* already own a copy, so a review *per se* may not seem warranted. However, I noted in this essentially error-free book a few problems the authors and publisher should keep in mind when the time comes for revisions. The bird in the adult Peregrine Falcon photo appears to be a bit on the immature side. This and several other weak pictures should be replaced. The Western Sandpiper appears to be in breeding plumage rather than nonbreeding. Absence of a Pine Warbler photo is most unfortunate. The endpaper map showing state and national parks and forests is helpful, but another map showing counties, geographic provinces, and mountain ranges would be especially useful to readers who are not well versed in the geography of the Carolinas.

Finally I should state that a major strength of this book lies in the authors' frequent admission of incomplete knowledge. Sometimes the problems are clearly defined, as in the Pine Siskin account. More often they are merely suggested by hedge words: possibly, probably, at least, is said to be, is not known to be. Particularly where breeding ranges are concerned, we have our work cut out for us.—JOHN B. FUNDERBURG, Director, North Carolina State Museum, P.O. Box 27647, Raleigh, N.C. 27611.

A FIELD GUIDE TO THE BIRDS OF EASTERN AND CENTRAL NORTH AMERICA

Roger Tory Peterson. 1980. Fourth edition. Houghton Mifflin Co., Boston. 384 p. 136 color plates, 390 range maps. Index. Hard cover, $15.00; paperback, $9.95.

This guide has been long awaited by birders, many of whom must have wondered why it took 33 long years for the fourth edition of Peterson's "bible" to hit the press. This edition represents a completely new format for the "bible," it being arranged along the lines of *Birds of North America* (Robbins et al., Golden Press, 1966). That is, the text for each species is located opposite the corresponding illustrations of the species, with range maps included (in the back of the Peterson book). Although all of the illustrations are new, the textual material is largely the same as in the third edition, with some reduction necessary in order to print an average of four or five species accounts on a page. The accounts present several statements on field identification; a few phrases on similar species; and brief mention of the voice, range, and habitat. In general, this reduction in text is most severe in the Similar Species section, the part of the account to which one most often turns when a puzzling bird is seen. Thus, the new format necessitated a somewhat weaker text than was present in the third edition.

At first glance the 136 plates seem to be a great improvement over the 60 plates in the previous edition. All but a few plates are in color. With an average of just four or five species portrayed on a plate, Peterson has given himself more space for illustrations of females, immatures, and birds in flight. Although most of the plates are good to excellent, it is readily apparent that Peterson has somehow failed to capture the "jizz" or "gestalt" of many groups of birds, and I found the quality of each single bird portrait somewhat inferior to those in the 1947 edition. The least satisfactory illustrations are the ducks on the water; the bodies are too long and slender. The shearwaters and petrels are illustrated with wings bent back at the wrist, and they thus resemble gulls more than they do shearwaters. The flycatcher and sparrow illustrations also lack "jizz," the eye being painted in the center of the head and the crown being too rounded on many species. The Black-capped Petrel illustration is tucked near the crease of the book; yet the Cahow, found only in Bermuda, is portrayed both from above and below! Peterson has included plates on essentially all of the accidental species ever recorded in the East (except for Western species portrayed in his other field guides); however, I question the need for several of these plates, particularly the exotic species on p. 303. The highlights of the plates are the owls, even with only heads shown for most of the species, and the accidentals (especially the pelagic birds). There is no text for most of the accidental species, only a list of states where each has been recorded—a practice I dislike, as it introduces errors into the book (a Zone-tailed Hawk in North Carolina?) and becomes quickly out-of-date. I rate the overall quality of the plates equal to or slightly superior to those in Robbins (because of the inclusion of the accidentals), though the latter guide treats the entire continent and Peterson only the eastern half.

The third major feature of the book is the range maps, all grouped at the back of the book as in Conant's *A Field Guide to the Reptiles and Amphibians of Eastern and Central North America.* The pink, blue, and purple colors on the maps indicate the breeding range, wintering range, and range of permanent occurrence, respectively. Unlike the maps in the Robbins guide, isochronal lines and lines representing migration routes are not presented. Instead, Peterson and his wife (who prepared the maps) give capsule comments on the maps, such as "migrant mainly through plains," "declining in s. part of range," and "winters mainly south of U.S." I find these comments very informative, and they eliminate clutter from the maps that the migration lines in Robbins produce. The maps are also considerably larger and more detailed than in Robbins, and state boundaries are presented on most of them. At first glance the state lines are very helpful, but after careful scrutiny of the maps, I have come to a sad conclusion. Detailed knowledge of bird distribution in the United States and Canada has not advanced to the point it has in Europe, and there is a definite need for a distribution atlas project for North America, whereby persons interested in range maps for selected species can contact the agency in charge for these maps, rather than spending countless hours in libraries researching the maps for themselves. In other words, distributional data are still so incomplete in some sections of the continent that maps with state boundaries are not really proper. I have major complaints about the distributions shown for a number of species in the Carolinas. Several dozen species of waterbirds winter inland in the Carolinas, but the maps show many of them wintering only coastally or only in the coastal plain (e.g. ducks, gulls, and shorebirds). Even though most of the maps are quite up-to-date (such as the *Empidonax* flycatchers and Mississippi Kite), others are 30 or 40 years out-of-date (such as Barn and Cliff swallows, Bewick's Wren, and Cerulean Warbler). I am somewhat disappointed with the maps for approximately 50 species found in the Carolinas, but only for 15 or so do I really gag—Horned Grebe, both gallinules, White Ibis, Killdeer, Saw-whet Owl, Yellow-bellied Sapsucker, Western Kingbird, Cliff Swallow, Barn Swallow, Fish Crow, Bewick's Wren, Solitary Vireo, Cerulean Warbler, Brewer's Blackbird, "Baltimore" Oriole, Bachman's Sparrow, and Henslow's Sparrow.

The guide features several other changes from the third edition. I am pleased that the waterbirds are grouped together in the front half, thanks to the removal of the hawks and gallinaceous birds from between the ducks and rails (where they occur on the checklist) and the subsequent placement of them in the guide next to the owls. Peterson has changed the common names of several species (such as American Crow and Sedge Wren), and he has included a chapter entitled "How to Identify Birds," complete with black-and-white sketches.

All-in-all the new guide is well worth the money and is a visual delight. Birders who already have the Robbins guide and the old Peterson guide can live without the new Peterson, but I still recommend this book primarily because of the inclusion of accidental birds such as pelagic species and parrots. The range maps are an improvement over those in Robbins and are a great advancement over the written ranges in the third edition, but they leave me wishing for a continent-wide range-mapping project that would satisfy sticklers for accurate maps, like me!—HARRY E. LeGRAND JR.

HAVE YOU EVER HEARD OF A KANGAROO BIRD?

Barbara Brenner. 1980. Coward, McCann and Geohegan, Inc., New York. Two-color illustrations by Irene Brady. 48 p. Index. Hardcover, $7.95.

Written for young readers 7 to 10 years of age, this new book reminds me of *Birds Do the Strangest Things*, which my children thoroughly enjoyed some 15 to 20 years ago. Each of the 12 chapters is titled with a question: How Does the Oilbird See in the Dark? How Crazy Is a Cuckoo? Can a Bird Use Tools? Why Are Vultures Bald? The answers to the questions tell a great deal about bird behavior. Although Ms. Brenner missed a good opportunity to point out similarities between Oilbirds and cave-dwelling bats as well as those between Oxpeckers and Cattle Egrets, the book generally does a good job of relating the birds of faraway places to those of North America. The vocabulary of this book may cause problems for some young readers, but unfamiliar words will undoubtedly arouse the curiosity of many others.—EFP

WELCOME THE BIRDS TO YOUR HOME

Jane and Will Curtis. 1980. The Stephen Greene Press, Battleboro, Vermont. Many black-and-white drawings by John Sill. 154 p. Price N.A.

The jacket blurb admits that this is "not a scientific book of ornithology." It is a "folksy" and somewhat trite story of the family who move from the city to the country with the usual problems. Their interest in birds was aroused one morning when they heard a Red-winged Blackbird. From that start, they obtained field guides, built feeders, studied migration, observed nesting, and designed plantings to attract birds. Unlike many others, they did not start with a feeder; they began by protecting and developing habitat. As they explore each facet of bird study, the authors include much information already available in print, but presented here attractively for the beginner. Each chapter is headed by a drawing of one familiar species, and there are dozens of small drawings to illustrate the authors' points. These pictures—by John Sill of Franklin, N.C.—are excellent.—LCF

A FIELD GUIDE TO THE BIRDS OF AUSTRALIA

Graham Pizzey. 1980. Princeton University Press, Princeton, New Jersey 08540. 88 plates (mostly in color) by Roy Doyle. 460 p. Indexed by scientific and English names. Hardcover, $27.50.

If you have ever dreamed of birding in Australia, this book will make you call your travel agent. Pizzey's guide treats 726 species, many of which have two or more well-marked races that can be recognized in the field. The 1300-plus bird illustrations are printed in a section near the middle of the book, and the range maps (breeding range only) are at the back. Endpapers offer a large map of Australia. Each species account is numbered to permit easy coordination of text with maps and bird illustrations. Numbers in the indexes refer not to pages but to species and plates. The text is well organized and generally easy to follow in spite of the telegraphic style and numerous abbreviations. Many of the birds are drawn in profile with only one leg visible, and several plates are crowded with up to 25 drawings per page. Some of the illustrations are far more appealing than others, giving the impression that the artist matured greatly while the work was in progress. However, all drawings appear to be adequate for their intended purpose. Among the 25 or so familiar species Carolinians may find in Australia are the Cattle Egret, Sanderling, Glossy Ibis, Barn Owl, and Barn Swallow. But who will look for them in the land of Emus, the Australian Cassowary, kookaburras, and bowerbirds?—EFP

CBC ROUNDTABLE

(Continued from Page 12)

of the work is to provide a data base to aid forest managers in assessing effects of land management decisions on birds. The range maps cover Virginia, North and South Carolina, Georgia, and Florida. The text provides concise information on status, primary habitats, key habitat requirements, reproduction, and food habits for each of the 234 avian species included in the work.

"Decline and disappearance of the Dusky Seaside Sparrow from Merritt Island, Florida" by PAUL W. SYKES JR. (American Birds 34:728-737, September 1980) features Paul's remarkable color photo of an adult male singing on territory.

With Their Ears Pricked Forward—Tales of Mules I've Known by JOSHUA A. LEE was released in October 1980 (John F. Blair, Publisher, 1406 Plaza Drive S.W., Winston-Salem, N.C. 27103. 138 p. $8.95). What will this bird-watching plant geneticist do next?

Atlas of North American Freshwater Fishes, an 850-page looseleaf publication treating 777 recognized species, was released by the North Carolina State Museum of Natural History in October 1980. Coordinator of the project was DAVID S. LEE. Each species account includes an illustration of the fish, a range map, and text giving type locality, systematics, distribution and habitat, adult size, and biology. For further information write Fish Atlas, North Carolina State Museum, P.O. Box 27647, Raleigh, N.C. 27611. Lee is also author of "The Pocket Gopher Mound Project," which appeared in the June 1980 issue of *Natural History.*

The Age of Birds by ALAN FEDUCCIA, of the University of North Carolina at Chapel Hill, traces the evolution of birds from their emergence in the Age of Reptiles to the present. A review is planned for a future issue of *Chat.*

Carolina Bird Club
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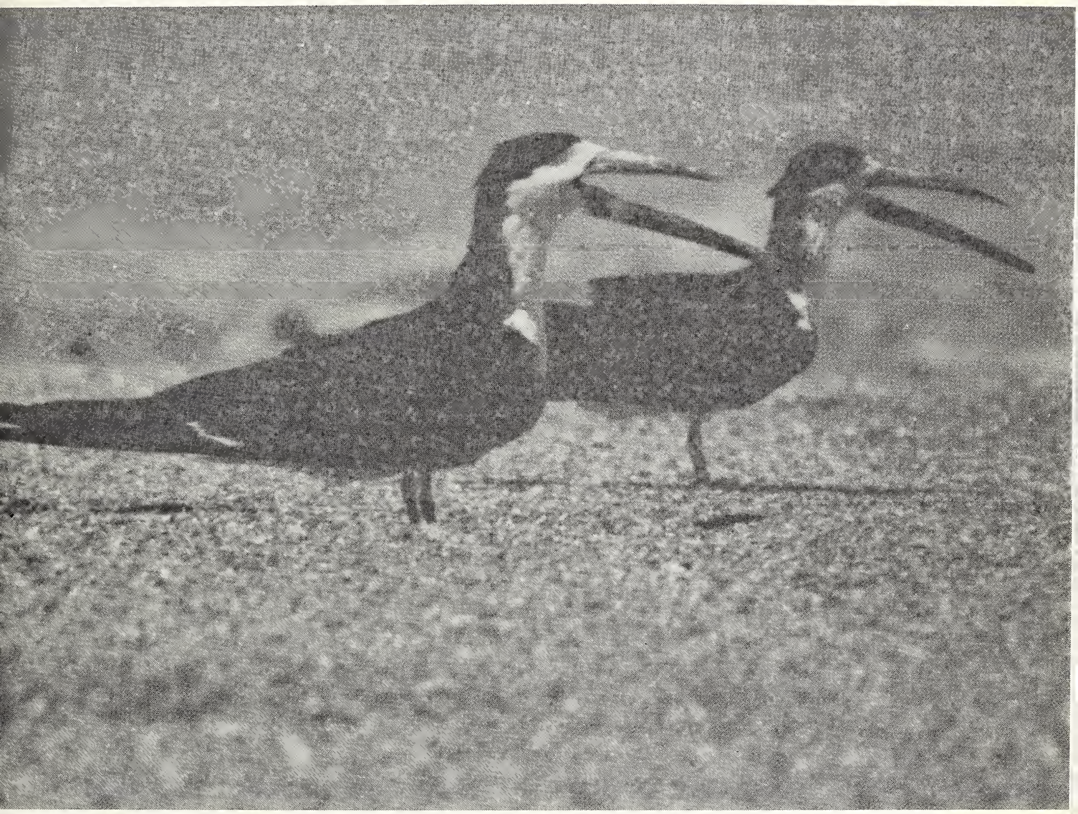

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OUR COVER—Many birds use panting as a means of reducing body temperature. Gilbert S. Grant photographed panting Black Skimmers during his extensive studies of the birdlife of the Salton Sea in California.

STATUS OF THE CERULEAN WARBLER IN THE ROANOKE RIVER BASIN OF NORTH CAROLINA

J. MERRILL LYNCH

Abstract.—The Cerulean Warbler breeds, or formerly bred, at several sites in the mountains and upper piedmont of North Carolina and was recently discovered in the coastal plain along the Roanoke River. This paper gives the current status of the Roanoke River population, identifies remaining habitat zones, describes essential habitat requirements, and makes recommendations concerning management and protection strategies.

The primary range of the Cerulean Warbler (*Dendroica cerulea*) lies west of the Blue Ridge Mountains in the north-central United States and in the Appalachian highlands. East of its main transalleghenian range, the species breeds only locally. Small, disjunct populations are known from the fall belt of northeastern Maryland and from several sites on the Maryland piedmont (Stewart and Robbins 1958). Another disjunct population has been reported from the Chickahominy Swamp area of Henrico and Hanover Counties near Richmond, Virginia (Scott 1958). This site is on the western edge of the upper coastal plain.

Birds of North Carolina (Pearson et al. 1942) lists three Cerulean Warbler breeding records from the western piedmont: Morganton, Burke County, adult feeding young, 1909, Arthur Wayne; Greensboro, Guilford County, adult feeding young, 1929, E. E. and F. R. Brown; and Statesville, Iredell County, nest with young, 1930, M. E. Stimson. Forty-two years had elapsed since the last recorded nesting of the species in North Carolina when I discovered a sizable and previously unsuspected breeding population in the northern coastal plain in 1972 (Lynch 1973). Since then, five colonies have been reported from the North Carolina mountains during the breeding season and are assumed to be nesting populations although no nests or young have yet been found. These colonies are in the counties of Wilkes (Lynch 1973), Polk, Buncombe (McKenzie and Copenhaver 1975), Graham (LeGrand 1979), and Clay (Schultz 1980). The Polk County colony was found by Chris Marsh and Merrill Lynch in May and June 1975. On several dates during these months we observed three or four males singing near the Green River in the southwestern part of the county.

Figure 1 shows the general breeding range of the Cerulean Warbler, as stated in the A.O.U. *Check-list* (1957), with an enlarged map for Maryland, Virginia, and North Carolina. To the best of my knowledge, there are no breeding records for this species from South Carolina or Georgia.

The Cerulean Warbler breeding population in eastern North Carolina is situated along the Roanoke River flood plain in a four-county area, disjunct by over 185 miles from the nearest known North Carolina mountain populations and by about 80 miles from the Chickahominy Swamp population in Virginia. Roanoke River and Chickahominy Swamp are the only known breeding sites for the species in the coastal plain along the Atlantic seaboard.

The purposes of this paper are to update and define the current status of the Roanoke River population, identify remaining habitat zones, describe essential habitat requirements, and make recommendations concerning management and protection strategies. The Cerulean Warbler was suggested as a Threatened species in North Carolina by the Symposium on Endangered and Threatened Biota of North Carolina in 1975 (Parnell 1977) and was considered a candidate for predesignation study in 1979

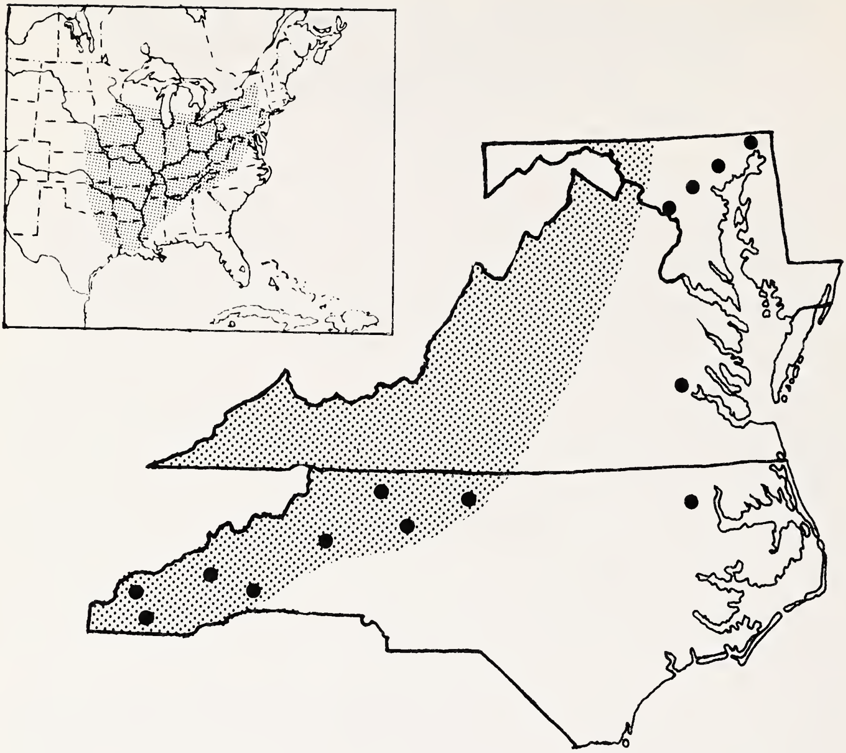

Fig. 1. Breeding range of the Cerulean Warbler. (Map by Steven P. Platania, North Carolina State Museum.)

(CBC Records Committee/N.C. Wildlife Resources Commission Endangered Species Advisory Committee).

Field work during May and June 1979 was implemented under contract with the North Carolina Natural Heritage Program, Division of Parks and Recreation, Department of Natural Resources and Community Development. Previous field work during the summer of 1975 was partially funded by the North Carolina State Museum of Natural History (NCSM).

The Roanoke River breeding population was discovered in June 1972 in the Occoneechee Neck section of Northampton County, and the 1973 breeding population at this site was estimated at 25 pairs (Lynch 1973). Field work sponsored by the NCSM in 1975 revealed a much more extensive population, extending from Weldon, Halifax County, downstream to Old Mill Landing near Windsor, Bertie County, a distance of 82 miles. This includes portions of Halifax, Northampton, Bertie, and Martin Counties. Based on ground surveys at access points along this segment of the Roanoke River, I estimated at least 40 pairs to be present in 1975 (Parnell 1977).

Boat surveys during May and June 1979 revealed a minimum of 28 pairs present along a 37-mile segment of the river between Halifax and Palmyra in Halifax County. This segment lies roughly in the geographical center of the entire 82-mile range (Fig. 2). Populations of highest density occur in this 37-mile segment. Boat surveys of the

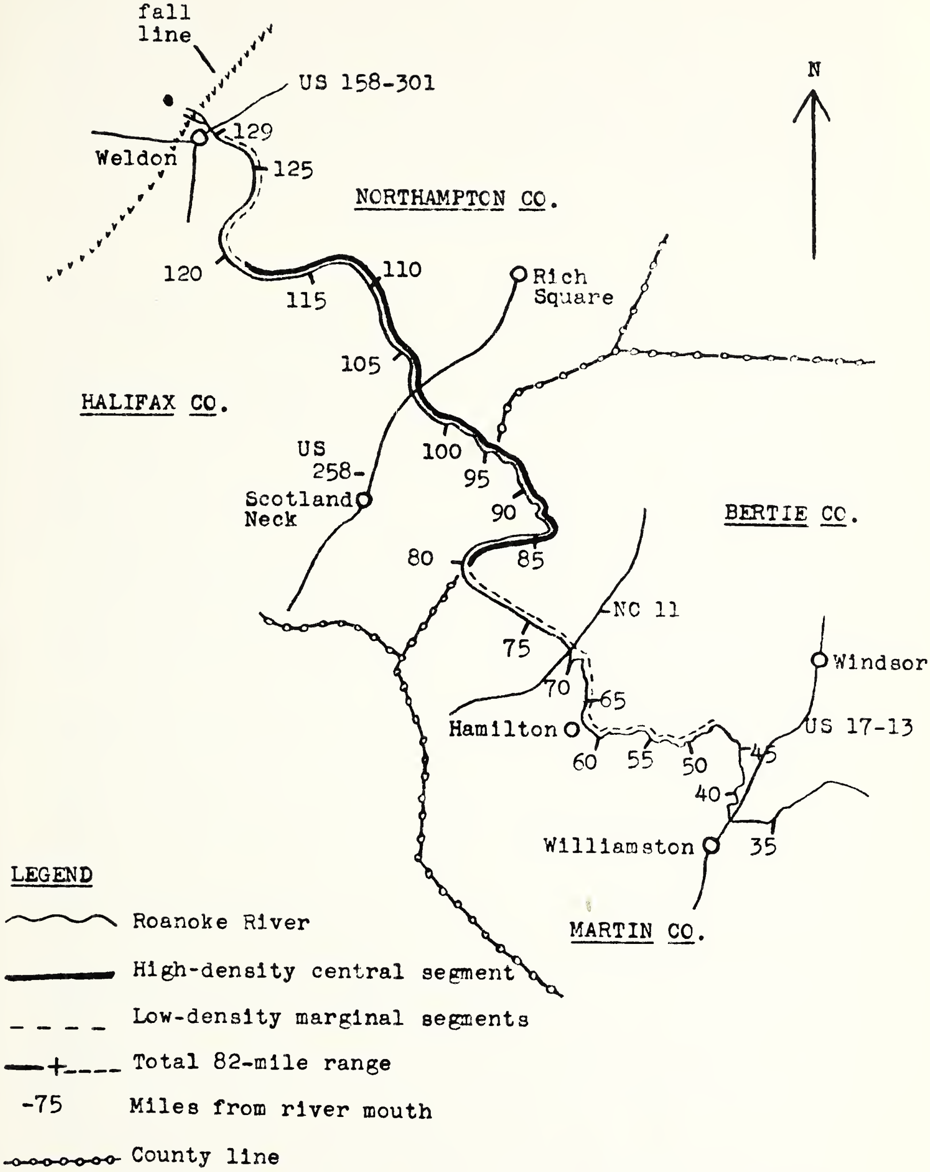
fall line
US 158-301
N
129
Weldon
125
NORTHAMPTON CO.
120
115
110
Rich Square
105
HALIFAX CO.
US 258
Scotland Neck
100
95
90
BERTIE CO.
80
85
NC 11
75
70
65
Windsor
Hamilton
US 17-13
60
55
50
45
40
Williamston
35
MARTIN CO.
LEGEND
Roanoke River
High-density central segment
Low-density marginal segments
Total 82-mile range
-75 Miles from river mouth
County line

Fig. 2. The Roanoke River from Weldon to Williamston, N.C., showing the relative density of the Cerulean Warbler population along the 82-mile section where the birds occur.

remainder of the range (Weldon-Halifax and Palmyra-Old Mill Landing) indicated only five pairs present. Pairs were determined by counting singing males (assumed to be territorial) by boat during peak singing periods in early morning. Ground checks indicated that in several areas singing males were present on territories more than 110 yards from the river bank, and these birds were not recorded by the boat surveys. Because of this censusing flaw, it was not feasible to determine the entire breeding population during this survey. However, the boat surveys did enable a determination of high-density population zones along the river and the relationship of these zones to habitat types. Based on this, an estimated 80% of the population occurs along the central 37-mile segment.

HABITAT REQUIREMENTS

The Cerulean Warbler distribution in the Roanoke River basin is primarily restricted by habitat requirements, and pair density is directly correlated with specific habitats. Highest densities occur in old-growth, mature floodplain forest communities on well-drained natural levees within 330 yards of the river.

The dominant canopy species of this alluvial community are Sycamore (*Platanus occidentalis*), Green Ash (*Fraxinus pennsylvanica*), and Sugarberry (*Celtis laevigata*). Other species present in the canopy include Cherrybark Oak (*Quercus falcata* var. *pagodaefolia*), Sweetgum (*Liquidambar styraciflua*), cottonwoods (*Populus heterophylla* and *P. deltoides*), and Water Hickory (*Carya aquatica*). The subcanopy is typically dominated by Box-elder (*Acer negundo*). The shrub layer varies from sparse to well developed in the floodplain system and includes dominants Spicebush (*Lindera benzoin*), Pawpaw (*Asimina triloba*), and Buckeye (*Aesculus sylvatica*). Ground cover is usually 100%, with dominance by several species of grasses and sedges and with Cane (*Arundinaria gigantea*) locally abundant. At the highest-density sites the canopy height is 80 to 100 feet, the shrub layer is distinct, ground cover is 100%, and the canopy is closed. This alluvial community is restricted to essentially flat, well-drained, silty loam levees that occur in bands 30 to 1000 feet wide adjoining the river.

The natural levees are low, flat ridges that occur directly adjacent to the river and are best developed along the 37-mile central segment. These levees are formed by periodic flooding of the river and the subsequent deposition of sediment over a period of many thousands of years. As water rises over the river bank during flood stage and spreads out over the flood plain, it rapidly loses velocity and the capacity to carry sediments. The coarsest material (usually silt) is dropped at the top of the bank, where it forms the small ridge. Natural levees are characteristic of a large river, such as the Roanoke, which carries a heavy load of silt and fine sand at flood stage. Depending on the position of the flood plain relative to sea level, the elevation of the natural levees along the Roanoke ranges from a maximum of about 50 feet above mean sea level (msl) near Weldon to a minimum of 15 feet msl near Williamston.

Soils typically associated with the levees include the Chewacla and Congaree silty loam series (Goodwin 1979, Lee 1955, Richards 1950). The seasonal high water table ranges from 0.5 to 4.0 feet beneath the surface during late winter and early spring. The flood plain is frequently flooded for brief periods. The levees are typically bounded on one side by the river and on the other side by cypress-gum (*Taxodium distichum-Nyssa aquatica*) swamp embayments or upland slope communities.

Along the fall belt at Weldon, the alluvial floodplain community is replaced by upland piedmont oak-hickory-pine associations. The remainder of the Roanoke River basin upstream from Roanoke Rapids is now inundated by a series of hydro-electric reservoirs. Downstream from Hamilton, Martin County, the cypress-gum swamp community assumes increasing dominance in the river basin and the alluvial floodplain community is restricted to increasingly narrow bands adjoining the river. This community reaches its downstream limit near Williamston, Martin County. Thus, the alluvial floodplain community occupies roughly a 90-mile section of the river, bounded on the upstream end by piedmont vegetation along the fall belt at Weldon and by cypress-gum swamp vegetation along the downstream limit near Williamston.

The high-density population zones of the warbler are clearly limited to the best-developed alluvial floodplain communities, which occur primarily in the 37-mile central segment. Of the 33 total singing males recorded on the 1979 boat survey, 28 occurred in the central segment. No singing males were observed in the adjoining cypress-gum embayments or in the upland slope communities. Minimum habitat requirements include: (1) a closed canopy, (2) presence of scattered, very tall, old-growth canopy trees, and (3) good development of vegetation strata, i.e., distinct zonation of canopy, subcanopy, shrub, and ground-cover layers. Floodplain areas of even-aged timber with no old-growth trees contain few, if any, breeding pairs.

BEHAVIOR

Singing males characteristically use the tallest available canopy trees for singing perches, alternately foraging and singing in a single tree for periods up to 35 minutes. These tallest trees, usually Sycamore, Ash, or Sugarberry, are also used as nesting sites. Males are persistent singers and may be heard throughout the day, although peak singing periods occur during early morning and late afternoon. Males arrive and establish territories in late April (earliest date, 22 April). Nest building and rearing of young probably occur from early May to early July. Males continue to sing until mid-July after which singing activity decreases rapidly. Birds remain in the area until at least mid-August (latest date, 26 August).

Both sexes spend a great deal of time foraging in the canopy of the taller trees, systematically hopping along the larger branches from the main trunk outward to the smaller, peripheral branches, gleaning the undersides of leaves and twigs. They rarely hover or perform aerial flycatching as some warblers do. Occasionally, a warbler will come down to the lower branches of the subcanopy, within 20 to 30 feet of the ground.

I have observed very few interactions of Cerulean Warblers with other birds. Only a few species locally occur with the warbler in the high canopy. The most common of these is the Red-eyed Vireo (*Vireo olivaceus*) which apparently coexists peacefully with the warbler. On two occasions I have seen male warblers chase vireos for short distances. A potential competitor is the Northern Parula (*Parula americana*). This is a canopy-subcanopy species over most of its range, but an interesting situation exists along the Roanoke River basin. In areas of mature, well-developed floodplain forest, (optimum Cerulean Warbler habitat) the Northern Parula is almost completely absent. Apparently it is restricted primarily to the cypress-gum swamp communities, particularly where Spanish Moss (*Tillandsia usneoides*) is abundant. Downstream from Hamilton, the alluvial floodplain community is largely replaced by the cypress-gum community with a corresponding replacement of Ceruleans by a sizable Parula population. The Yellow-throated Warbler (*Dendroica dominica*), another potential competitor, also seems to be restricted to the cypress-gum community in the river basin. Brown-headed Cowbirds (*Molothrus ater*) have undergone a significant range expansion and population increase in the North Carolina coastal plain in recent years. This species is common along the Roanoke during the breeding season and may be significantly affecting the warbler populations in the area, although I have no conclusive data or observations to support this hypothesis.

Two other warbler species are typically associated with the alluvial floodplain community, occurring in lower vegetation strata than the Cerulean Warbler, and therefore not competing with it. The Kentucky Warbler (*Oporornis formosus*) and the American Redstart (*Setophaga ruticilla*) are both common summer residents, occupying the ground-shrub and subcanopy layers, respectively. These species occur in high-density Cerulean Warbler zones but, not being confined to sites having a well-developed canopy stratum, also occur in cut-over, second- or third-growth forest areas that contain few or no Ceruleans. Both Kentucky Warblers and American Redstarts are considered rare or local over most of the North Carolina coastal plain and are typically associated with rich, mesic hardwood forests of the piedmont and mountain provinces.

Other characteristic breeding species that occur in the alluvial floodplain forest areas include Mississippi Kite (*Ictinia mississippiensis*), Red-shouldered Hawk (*Buteo lineatus*), Turkey (*Meleagris gallopavo*), Barred Owl (*Strix varia*), Pileated Woodpecker (*Dryocopus pileatus*), White-breasted Nuthatch (*Sitta carolinensis*), Wood Thrush (*Hylocichla mustelina*), Prothonotary Warbler (*Protonotaria citrea*), and Swainson's Warbler (*Limnothlypis swainsonii*). The Mississippi Kite is very local and occurs only in the vicinity of Buzzard Neck, Halifax County, and Occoneechee Neck, Northampton County (LeGrand and Lynch 1973).

HABITAT ZONE DESIGNATION

Identification of the best remaining tracts of alluvial floodplain forest was accomplished by boat surveys of the central segment. A four-level priority classification system (A, A-B, B, C) was designed to rate the floodplain forest communities based on the following criteria: (1) canopy height, (2) presence of a closed canopy, (3) relative disturbance (frequency and intensity of timbering operations, etc.), and (4) presence of tall, old-growth canopy trees (singing perches). All floodplain areas within the central segment that were considered to be prime or potential breeding habitat for the warbler were mapped. Areas of non-potential habitat (cultivated fields, pastures, sandpits, etc.) were not mapped. A, A-B, and B levels represent 3579 acres of presently available breeding habitat. A is the best remaining habitat (1031 acres), B is good marginal habitat (1671 acres), and A-B is transition between A and B habitat (877 acres). C represents *potential* breeding habitat, i.e., floodplain forest that has been clearcut or heavily timbered within the past 20 to 40 years and thus is presently not suitable as breeding habitat (2826 acres). However, if left undisturbed for a number of years, the C areas may develop into a mature alluvial community enabling the warblers to reinvade. Topographic maps identifying the critical habitat zones (accompanied by written descriptions and ownership information) are on file at the Natural Heritage Program office, P.O. Box 27687, Raleigh, N.C. 27611.

DANGERS TO HABITAT INTEGRITY

The Cerulean Warbler population along the Roanoke River appears to be in serious jeopardy due to extensive timbering of the floodplain forest. Since 1950, clearcutting operations have reduced the available breeding habitat by an estimated 50%. This timber policy effectively removes valuable breeding habitat and, assuming no further cutting, requires a minimum of 50 to 90 years for re-establishment of a mature floodplain forest community essential to the species. Much of the floodplain timber is owned by or leased to large timber corporations, which are presently cutting on a 20-year rotation cycle, effectively preventing re-establishment of the mature alluvial community. Conversion of some floodplain areas to pasture has also had some detrimental effect on warbler populations, but this has a relatively small impact when compared to the extensive timbering operations.

The greatest hope for the warbler lies in the small tracts held by local landowners who have resisted pressure to clearcut their property and who have practiced more conventional forms of timber management, such as selective cutting. I have observed territorial pairs in areas where selective cutting is presently being practiced and believe the warbler populations in these areas are being maintained. Urgently needed are intensive, quantitative studies of the remaining breeding populations to determine what the critical habitat requirements are in terms of long-range successional management so that a workable policy can be designed to permit timber production and removal while providing adequate protection for Cerulean Warbler habitat.

ACKNOWLEDGMENTS

I thank David Lee, of the North Carolina State Museum of Natural History, and Lance Peacock and Julie Moore, of the N.C. Natural Heritage Program, for reviewing this manuscript and offering many helpful comments. Thanks also go to John S. Wright, who helped with the 1975 field observations, and to Steven P. Platania, of the North Carolina State Museum, for assistance in preparation of the range maps.

LITERATURE CITED

American Ornithologists' Union. 1957. Check-list of North American Birds. Fifth ed. A.O.U., Baltimore.

Goodwin, R.A. 1979. Soil Survey of Edgecombe County, North Carolina. U.S. Dept. of Agri., Soil Conservation Serv., Washington, D.C.

Lee, W.D. 1955. The Soils of North Carolina. N.C. Agri. Exper. Sta., Tech. Bull. No. 115, Raleigh, N.C.

LeGrand, H.E., Jr. 1979. Cerulean Warbler colony in Graham County, N.C. Chat 43:20.

LeGrand, H.E., Jr., and J.M. Lynch. 1973. Mississippi Kites in northeastern North Carolina. Chat 37:105-106.

Lynch, J.M. 1973. Cerulean Warbler found in North Carolina in summer. Chat 37:83-84.

McKenzie, P., and L. Copenhaver. 1975. Briefs for the files: Cerulean Warbler. Chat 39:98.

Parnell, J.F. 1977. Birds. Pages 330-384 in Endangered and Threatened Plants and Animals of North Carolina (J.E. Cooper, S.S. Robinson, and J.B. Funderburg, Ed.), N.C. State Museum, Raleigh.

Pearson, T.G., C.S. Brimley, and H.H. Brimley. 1942. Birds of North Carolina. N.C. Dept. Agri., Raleigh.

Richards, H.G. 1950. Geology of the Coastal Plain of North Carolina. Trans. Am. Phil. Soc. 40:1-83.

Schultz, M.P. 1980. Warblers in southwestern North Carolina, including Cerulean Warblers in Clay County. Chat 44:18-19.

Scott, F.R. 1958. The Cerulean Warbler in summer on the Virginia coastal plain. Raven 29:118.

Stewart, R.C., and C.S. Robbins. 1958. Birds of Maryland and the District of Columbia. U.S. Govt. Print. Office, Washington, D.C.

North Carolina Natural Heritage Program, P.O. Box 27687, Raleigh, N.C. 27611, 7 March 1980.

CBC Roundtable

... with Louis C. Fink

The Willet's Way

She had placed her nest at least a foot below high water mark. Obviously, sooner or later, the Willet's eggs would wash away in a high tide.

Left exposed on the open flats, they would be eaten by coons or grackles—or, lost among rotting Spartina stems, they would fall to pieces and rejoin the energy network of the marsh through the activities of microscopic agents of decay. That the eggs might eventually hatch never entered my mind.

But, in the three weeks that followed, I visited and revisited the nest. Often I found the thin lining of straw on which the eggs lay soaking wet, but the eggs, themselves, always looked fresh and neatly arranged.

One had to peer carefully to see them tucked away in the base of a clump of Black Rush, especially if the setting Willet happened to be at home. Usually she waited almost until I could touch her before she would bolt, her screams bringing her screaming mate to help torment the predator.

They seemed to feel their nest and its contents in far greater danger from a nosey naturalist than from rising water.

At last I took the obvious steps and sloshed out for a visit at flood tide. The Willets screamed as usual. I hardly heard them. Enthralled, I suddenly saw and understood a totally unexpected adaptation to the tideland environment.

All four eggs bobbed gently in the cool water. The circle of rush stems around the nest had caged and guided the eggs up from the sand as the tide overtook them. When it subsided, I could see, the spikes would guide the eggs back down to the temporarily underwater nest. Fortunately I had brought along my camera and photographed the eggs in their watery cradle.

Could the embryos possibly survive a twice-daily wetting and chilling? If they hatched they would prove their placement no bird-brain mistake. A marvelous and, as far as I know, previously unsuspected nesting biology would be confirmed.

They hatched. On the morning of June 11th, not an hour after tide had drained from the soggy flats, I discovered two newly hatched birds struggling out of the Juncus clump. Behind them lay a pipped egg. The fourth egg had vanished.

I dashed back to the cabin for my camera, found breakfast on the table, and was delayed for nearly an hour. The young birds had left when I got back, but the pictures I took of the egg shells in the damp nest should document the event.—JAY SHULER, P.O. Box 288, McClellanville, S.C. 29458. (Reprinted with permission of the author from *The Greenville* [*S.C.*] *News*, 18 June 1972).

Blue Jays in Minnesota

Bill Hilton Jr. is a CBC member working on his doctorate at the University of Minnesota. Last year he began a detailed study of the Blue Jay; he and Jean M. Vesall located 121 nests within an area of about one square mile. By October 1980, the pair had banded 363 fledglings and adult birds. Since some of these jays overwinter and some migrate, Hilton will study the breeding success of different populations in the 1981 season. His work has been reported in *The Loon* (52:146-149). Hilton and some of his former students at the Fort Mill, S.C., high school have conducted a Christmas Bird Count for two years at the Carolina Sandhills National Wildlife Refuge. They will welcome volunteers for the 1981 count near McBee.

The 600 Club

Terry Moore (2699 Twiggs Circle, Marietta, Georgia 30067) reports 124 living members of the 600 Club, those who have seen and identified 600 species in North America north of the Rio Grande. Florida, Texas, and California are home to the majority, but Dwight R. Lee (615 species) is from North Carolina.

In an effort to start discussion, Terry offers a suggested list of which introduced species could be countable. He includes only those species that have maintained a stable breeding population. The Blue-gray Tanager was eliminated on that basis.

Mute Swan—not known to breed in the Carolinas.
Ring-necked Pheasant—breeding on Hatteras Island.
Chukar
Gray Partridge
Black Francolin
Rock Dove—I assume we all know this one.
Spotted Dove
Ringed Turtle Dove—breeding at Charleston and Winston-Salem.
Budgerigar—hypothetical breeder in the Carolinas.
Monk Parakeet—breeding near Asheville.
Canary-winged Parakeet
Yellow-headed Parrot
Red-crowned Parrot
Skylark
Red-whiskered Bulbul
Starling—no comment.
Crested Mynah
Indian Hill Mynah
Java Finch
House Sparrow—no comment.
European Tree Sparrow
Spotted Oriole
European Goldfinch

If you have information or comments on this suggested list, take the time to write Terry Moore. His interesting reports are available for $5 per year.

A New Blackbird Roost in Greenville, N.C.

On several days during December 1980 and January 1981, I observed a blackbird roost that formed at a site not used for this purpose in previous winters. It was in a grove of mixed oak and pine woods bordered by US 264 By-pass on one side, Evans Street extension on one side, and Lynndale housing subdivision on two sides.

Species frequenting the roost were primarily Common Grackles, Brown-headed Cowbirds, and Starlings, with smaller numbers of Red-winged Blackbirds. Flocks appeared to arrive in heaviest numbers for approximately 20 to 25 minutes, with the birds flying in bands from 50 to 150 feet wide. Most birds arrived from an easterly direction with lesser numbers returning from north or northeast. Birds did not immediately occupy the roost but circled in flocks or paused in nearby fields or trees before circling the roost site in mass groups to settle for the night. A great deal of vocalization accompanied each roosting session. Gradually diminishing, these calls continued throughout the roost well after darkness. Departure from the roost occurred in a relatively short period of time. Most birds departed in a rather uniform movement, usually 20 to 25 minutes before sunrise.

Interestingly, the roost site features no buffer zone or protective area on its borders and is near a rather heavily traveled highway. A large television tower is nearby, a fact that may aid the birds in orientation toward the roost. The understory vegetation may afford some protection from predators and cold weather. It is primarily a combination of Greenbriar (*Similax* sp.) and Cane (*Arundinaria* sp.).—JEFFREY D. SHATTERLY, Department of Biology, East Carolina University, Greenville, N.C. 27834.

CBC Members in Print

The Autumn 1980 issue of *Journal of Field Ornithology* has two CBC members as contributors. KEITH BILDSTEIN and Frances Hamerstrom wrote "Age and Sex Differences in the Size of Northern Harriers" (51:356-360), PAUL A. STEWART and Harold A. Connor wrote "Fixation of Wintering Palm Warblers to a Specific Site" (51:365-367), and Stewart also wrote "Mockingbird's Defense of a Winter Food Source" (51:375).

MORRIS D. WILLIAMS, a member from Tennessee who is a graduate student at Louisiana State University, has a note in *Auk* (98:187-189) about his discovery of the nest and eggs of the Cinereous Finch, a species endemic to the coast of Peru. In an earlier paper (Auk 97:889-892), Williams gave the first description of the eggs of the White-winged Guan, a Peruvian species that was thought to have been extinct for 100 years prior to its rediscovery in 1977.

H. DOUGLAS PRATT is the principal author of a paper on the resident birds of the Palau Island in western Micronesia (Condor 82:117-131). Pratt, like Williams, is associated with the Museum of Zoology at LSU.

Cardinal Print Available

The April 1981 issue of *Carolina Country,* the official publication of the North Carolina Association of Electric Cooperatives, Inc., features John Trott's photograph of a male Cardinal that appears on the jacket of *Birds of the Carolinas.* Editor Owen Bishop arranged to have reprints made for his readers and graciously extends the offer to Carolina Bird Club members. The 8½ x 11-inch color photo is reproduced with a white border on heavy 11 x 14-inch glossy paper. Send your name, address, and $3 for each reprint to Cardinal Photo, Carolina Country, P.O. Box 27306, Raleigh, N.C. 27611.

Backyard Birding

. . . with Gail T. Whitehurst

Backyard birding comes into its own in February. If one does not already have a feeding station, we recommend this as the optimum time to initiate a feeding program. Natural feed has been diminished or depleted. Winter residents are moving about in search of food. Permanent residents are staking out nesting territories, thereby sending others of their species in search of new grounds. The migrants have only a few weeks in which to build up fat deposits to sustain them on the long journey north. These factors mean an increase in numbers attracted to feeders.

Subtle changes in appearance are taking place daily. Colors are becoming more brilliant as pre-nuptial moults are taking place. By the middle of February, one can see a few White-throated Sparrows whose throats and head stripes are a "freshly painted" white. Purple Finches seem to glow. Goldfinches turn from olive drab to sunny yellow. The more birds you have and the more time you devote to watching them, the greater your chances of seeing something of interest. Perhaps you will note an unusually marked or colored bird. Or a species new to you will appear on the scene. It is an excellent time to study the ways in which birds solve eating and drinking problems.

February is a good time, too, to become familiar with bird songs and calls. With the exception of the mountains, perhaps, most of the permanent residents are singing loud and clear toward the end of the month. On mild days, when the need for constant feeding is diminished, many of the winter residents such as Dark-eyed Juncos, Purple Finches, Pine Siskins and American Goldfinches are breaking forth into song. Woodpeckers begin drumming in earnest. Common Flickers and Red-bellied Woodpeckers seem to prefer the increased volume and resonance that comes from beating their tatoo on metal gutters, streetlight covers, power poles, and metal transmission line towers.

Spring migration has begun in late February. Large flocks of Common Grackles, Red-winged Blackbirds, Brown-headed Cowbirds, and American Robins may suddenly appear in your backyard. Bluebirds are on the move. Scatter some seed along a hedgerow and you may see a Fox Sparrow. You may have some less desirable visitors, too, such as Common and Fish Crows or a Sharp-shinned Hawk. By the end of the month, "skywatching" is good for hawks and waterfowl flying northward.

We have had some interesting and exciting observations this past winter. We have heard of many more. We are delighted to have received reports from a number of you CBC members. We want and need your contributions to make this department a success.

Now That's Using Your Head!

It was Bird Count Day along the Pamlico, in Beaufort County, 4 January 1981. A winter temperature of 25 degrees F (dropping to 19 and lower during the night) I knew would bring our bird friends. Glancing over the bird bath, I was surprised to see a

Pileated Woodpecker sitting in the middle, boring away at the edge to break the rim of ice so he could drink . . . all 18 inches of him sitting there, frustrated and drilling away. Every few seconds he'd raise his head to relax before starting to drill again—not noticing the finches, Fox Sparrows, and Blue Jays coming in for a landing and zooming quickly into the cover of a nearby holly tree.

Chickadees and nuthatches going in and out and up and down the tree distracted me for a moment, and then a male Eastern Bluebird flew over and perched on a holly branch close to my window. I looked quickly back to the bird bath. The woodpecker had bored a cigar-shaped path through the ice and was drinking! There couldn't have been much water there—and how did he know there would be any water after all his effort?

The Pileated is seen in our yard only three or four times a year, and for him to perform like a social being, on our level, and to appear just at the right time, was unbelievable. (My husband took several camera shots while this drummer was drilling and surveying the situation.) When his thirst was satisfied, the Pileated flew high into a tall pine tree and immediately his place at the bird bath was taken over by three male bluebirds. Then sparrows and finches enjoyed "bellying up to the bar," while the bluebirds flew around them and the Cardinals did their feeding around the base of the bird bath.—DICK and DORIS PROVOST, 110 Wedgewood Drive, Yacht Club Cove, Washington, N.C. 27889

Waste Not, Want Not

No matter how long the temperature stays below freezing, the recirculating pump in my fish pool keeps a trickle of water flowing over a big rock at one end. All the birds in the neighborhood come here to drink and bathe. Sometimes the traffic is so heavy that many birds never even get their beaks wet before being displaced by a new arrival. I am accustomed to seeing birds, especially the small seedeaters, foraging on the frozen surface of the fish pool. I always assumed they were picking up seeds blown on the ice. However, on 9 January two Golden-crowned Kinglets foraged on the ice of the fish pool for several minutes. On 11 January an Eastern Phoebe dropped from a rock beside the pool to the ice and pecked at it several times before flying away. Examination of the ice revealed many leaves protruding from the frozen surface, but I saw nothing that resembled an insect or a part of one among the bird droppings, leaves, and shredded husks of seeds that littered the ice. One possible explanation is that these highly insectivorous birds were recycling semi-digested food from the droppings of the other birds. Although I have absolutely no proof of this idea, it is not without precedent. I've seen Rough-winged Swallows on the ground picking tidbits from horse droppings, and this happened in the summertime when insects were readily available. Of one thing I am certain, kinglets, phoebes and swallows always have a good reason for the rare occasions when they forage at ground level.—ELOISE F. POTTER, Route 3, Box 114 AA, Zebulon, N.C. 27597

Skywatch!

In the early afternoon of 18 January 1981, I was watching an immature Red-tailed Hawk soaring over my back yard. All of a sudden, I spotted a much smaller hawk dropping down on the Red-tail from above. Putting my binoculars on the two birds, I noted that the smaller one was a small, light falcon with a dark banded tail. The falcon dove at the Red-tail's back, causing it to break from the circling pattern and move away. The falcon would fly away a short distance, turn and attack again. This behavior continued until both were out of view. I identified the falcon as a Merlin. I had seen a Merlin fly over my yard on 7 January 1981.—GAIL T. WHITEHURST, 1505 Brooks Avenue, Raleigh, N.C. 27607

More on page 56

General Field Notes

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JULIAN R. HARRISON, Associate Editor
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Green Heron Fishing with Mayflies

WILLIAM J. KEENAN III
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At 1815 EDT on 16 August 1975 at Lake Murray near Chapin, S.C., I saw a Green Heron standing on a rock at the edge of the water about 120 feet from where I stood. Behind the heron and 2 yards back from the water, a swarm of mayflies was circling. While I watched through binoculars, the bird walked to the insects, caught one, and, holding it crosswise in its beak, returned to the water where it dropped the mayfly in the shallows. A small fish rose to the fly and was caught by the heron. Four of us watched as the bird repeated the process. After catching a third mayfly, the bird went to a different perch by the water and was hidden from our view by a large boulder. The heron flew away a few moments later.

[NOTE: At least three other instances of what appears to be "insight learning" in this species are known. These also involve the baiting of fishes. In one case (Wilson Bull. 70:280-281) the heron used pieces of bread; in the second (National Geographic 146:143-147), fish-food pellets were used; and in the third (Am. Birds 29:652-654), the lure was a feather.—JRH]

Specimen Record of a Black-bellied Whistling-Duck from Carteret County, N.C.

DAVID S. LEE
North Carolina State Museum of Natural History
Raleigh, N.C.

While reorganizing portions of the bird collection at the North Carolina State Museum, we uncovered a previously unreported specimen of a Black-bellied Whistling-Duck (*Dendrocygna autumnalis*) collected in North Carolina. The bird (NCSM 2910) was shot by Eugene Pond in Cove Sound, near Stacy, Carteret County, on 15 February 1968. Mr. Pond, who has secured and reported other interesting first records from this region, recalls collecting the bird. The bird is in fresh adult plumage and is of the Northern subspecies. *D. a. autumnalis* (= *D. a. fulgens* in 1957 edition of A.O.U. Check-list). The belly is dark brown, suggesting a bird of south Texas/northeast Mexico origins (Condor 49:189-195). Unfortunately, its sex was not determined at the time the skin was prepared, and the species, unlike most waterfowl, does not have sexually dimorphic plumage.

This duck apparently does not regularly wander outside its normal range as does the Fulvous Whistling-Duck (*D. bicolor*). In the United States, the breeding range is limited almost entirely to southern Texas and from here ranges southward along the tropical coasts of Mexico and central America. There are scattered nesting records in other parts of Texas and in Arizona (Southwestern Nat. 15:394-395) and Kansas (Am. Birds 34:908). Two nesting records from the Miami, Florida, area (Am. Birds 23:652) may represent escapes from a nearby zoo. Individuals from the northern portion of their range normally over-winter south of the United States/Mexican border. Because this duck is not typically a long-distance wanderer, it should be suspected that a February North Carolina record is that of an escaped bird. Nevertheless, the condition of the plumage and feet give no indication of recent captivity. This record, the first for North Carolina and one of the few from east of the Mississippi River, will qualify the Black-bellied Whistling-Duck as a Provisional II species on the state bird list. Most other waterfowl records of birds of possibly captive origin have received the same status (Chat 443:59-61).

I thank James Parnell for advice in preparing this note. 1981-1 N.C. Biol. Surv.

Status of the Mississippi Kite in North Carolina

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3 February 1981

The presence of Mississippi Kites (*Ictinia mississippiensis*) during the breeding season in North Carolina was first reported in June 1972 from the Occoneechee Neck area of Northampton County (Chat 36:112). Since that time, a number of sightings during the period of May through October have been reported from the coastal plain and piedmont provinces of the state. This field note is intended to clarify the present status of the species in North Carolina.

Mississippi Kites are presently undergoing a substantial range expansion and population increase throughout their range in the southern United States (Am. Birds, 33:119-129) and are apparently expanding their range northeastward through eastern North Carolina. Prior to 1972 there were only three records for the state: one killed in Cherokee County on 26 May 1893, another shot in that area soon afterward, and one at Southern Pines on 20 October 1949 (Birds of North Carolina, 1959). Since 1972 a number of verified sightings have been reported from the state. These are summarized in Figure 1 and below.

1. One at Occoneechee Neck, Northampton County, on 15 June 1972 (Chat 36:112).
2. One at Occoneechee Neck on 6-12 May 1973 (Chat 37:105-106).
3. One adult at Cutawhiskie Creek, SW Hertford County, on 4 July 1973 (Chat 37:105-106).
4. One along the Pee Dee River, SE Anson County, on 12 July 1975 (Chat 40:18).
5. Twenty-three counted along the Pee Dee River in SE Anson County and adjacent Chesterfield County, S.C., on 3 August 1975 (Chat 40:47).
6. One adult along the Eno River, Durham County, on 24 April 1976 (Chat 40:87.
7. One immature at Occoneechee Neck on 8 May 1976 (Chat 40:87).
8. Twenty-three (including two immatures) at Buzzard Neck, SE Halifax County, on 30 May 1976 (Am. Birds 30:827).
9. One at Cedar Mountain, Transylvania County, on 6 June 1976 (Chat 41:14).
10. Five adults at Buzzard Neck on 6 June 1977 and three adults there on 26 June 1977 (Chat 42:17).
11. Two immatures at Nash Farms in Franklin County on 14 September 1978 (Chat 43:38).

12. Twenty-nine adults at Buzzard Neck on 2 June 1979 and one immature there with several adults on 4 July 1979 (Am. Birds 33:854).
13. Two adults along the Pee Dee River, SE Anson County, on 16 August 1979 (Chat 44:47).
14. One immature at Jordan Reservoir, Chatham County, on 20 September 1979 (Chat 44:47).
15. Two immatures at Oak Island, Brunswick County, on 18 October 1979 (Chat 44:47).

In addition to the above records there are several unpublished sightings of adults from the Occoneechee Neck and Buzzard Neck sections of the Roanoke River flood plain. These records include single birds at Occoneechee Neck and flocks of 5 to 20 individuals at Buzzard Neck, all dated May through July 1976-1980.

A review of the above published records indicates there are only three sites where kites have been noted on a regular basis during the breeding season (May-July). The other records likely represent postbreeding dispersants from populations in South Carolina.

Two of these sites, Occoneechee Neck and Buzzard Neck, are located within 25 air miles of each other on the flood plain of the Roanoke River in the northern coastal plain. Both sites are similar in habitat, containing a mosaic pattern of large, low-lying agricultural fields with numerous cypress-gum swamp sloughs and alluvial bottomland forest. The kites are restricted to the low flood plain, feeding over both the forested zones and the open farmland.

Immature kites have been observed at both sites in May and July. One immature seen at Buzzard Neck on 4 July 1979 had a very ragged appearance with several primaries missing from each wing. It was seen in company with several adults feeding over a large beaver pond. Its behavior also suggested a young bird recently off the nest. The flight was awkward and clumsy with much flapping in contrast to the smooth, effortless gliding of the adults. This record, coupled with the regularity of occurrence at this location, *suggests* the possibility of breeding although positive confirmation (nest or flightless young) is still lacking for the state.

The third site is along the Pee Dee River in extreme southeastern Anson County near the South Carolina state line and situated on the extreme eastern edge of the

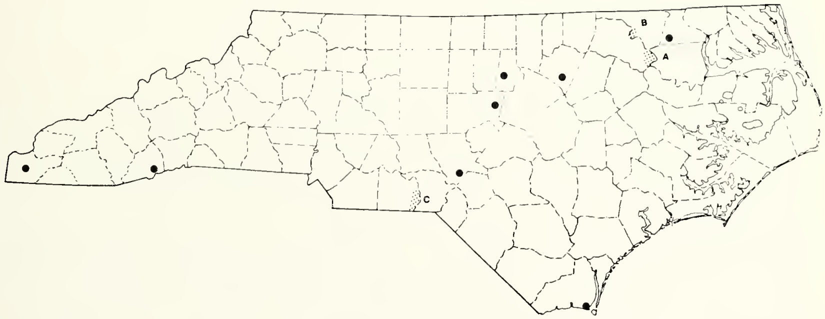

Fig. 1. The map shows all known occurrences of the Mississippi Kite in North Carolina. Dots represent scattered sightings. Stippled areas are sites where the species has been found regularly since 1972 and where breeding is suspected: Buzzard Neck, Halifax County (A); Occoneechee Neck, Northampton County (B); and Pee Dee River, Anson County (C). (Map by Steven P. Platania.)

piedmont province. There are published reports of up to 23 individuals from this area and adjacent Chesterfield County, S.C. The habitat at this site is strikingly different from the Roanoke River sites. The flat floodplain levee is restricted to a very narrow zone along the river channel and is bordered on both sides by steeply rising upland slopes. Almost all of the land bordering the river is forested except for clearcuts, and there is little open farmland.

Floodplain habitat similar to that of the Roanoke River sites does exist along the Pee Dee River downstream in South Carolina where the river enters the relatively flat coastal plain. I believe that the Anson County kites are nesting in South Carolina and using the Anson County site primarily for feeding purposes.

One habitat feature present at all three sites is extensive open areas of beaver ponds ranging in size from several acres to 100 acres. These ponds provide optimum breeding conditions for numerous species of dragonflies, mayflies, and other large flying insects and may provide important feeding habitat for the kites. I have noted flocks of kites feeding over beaver ponds in the Buzzard Neck area.

Parker and Ogden (Am. Birds 33:119-129) have documented the Mississippi Kite expansion and population increase throughout the southern United States. The question arises as to how far north the species' historic breeding range extended. Evidence supports a recent range expansion and not a reoccupation of former range, at least for the Roanoke River population. The species, by virtue of its gregariousness and preference for open areas, is highly visible and not easily overlooked, even by farmers and others who have no real interest in birds. Personal communication with several farmers in the Buzzard Neck area revealed that they had noticed the kites at the site since the late 1960s or early 1970s. They did not recall having seen any earlier than that, even though the memories of some went back to the 1920s and 1930s. I believe that these birds represent a recent range expansion as a result of the "spillover effect" from population increases further south in South Carolina and Georgia.

I predict that breeding evidence will soon be confirmed in North Carolina and that additional populations will be discovered in areas of suitable habitat in the coastal plain. Potential habitat exists in the flood plains along the major brown-water rivers, i.e., the Cape Fear, Neuse, and Tar systems. Sections that contain the best habitat include the Cape Fear from Fayetteville downstream to Elizabethtown, the Neuse from Clayton downstream to Kinston, and the Tar from Rocky Mount downstream to Greenville.

Second Sight Record of Say's Phoebe in South Carolina

JOHN B. ANDRE
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Ruth Ittner and I spent the afternoon of 30 September 1979 watching birds on Bulls Island in Cape Romain National Wildlife Refuge, Charleston County, S.C. After an hour we met the assistant refuge manager, Dick Munoz, and proceeded by vehicle to the refuge boat basin on the west side of the island. Upon our arrival at 1430 EDT, I noticed a bird perched on the corner of the roof covering the boat basin. The dark-colored bird exhibited an upright flycatcher posture and wagged its tail. When we left the vehicle, the bird flew a short distance and perched approximately 5 m above the ground in the top of a small tree. While the bird was flying, we noted the rusty abdomen and flycatcher-like flight. With 7 x 35 binoculars, we viewed the stationary bird for approximately 4 minutes from a distance of 10 m. We saw the dark brown-gray head, gray back, and dull black tail. The wings were also dull black with gray edging on the secondaries and coverts. The throat and breast were light gray. After this period of observation, the bird flew toward and past us. It then perched for approximately 2 minutes on an I-beam supporting the roof of the boat basin. Again we saw the characteristics previously mentioned. The bird was last seen flying southeast over the salt marsh toward the interior of the island.

All observers identified the bird as a Say's Phoebe (*Sayornis saya*). To confirm our identification of this Western flycatcher, we immediately referred to *The Birds of North America* (Robbins, Bruun, Zim and Singer 1966, Golden Press, New York, N.Y.) All three members of the party are familiar with the species, Munoz having lived in Montana for 16 years before moving to South Carolina, Andre having attended graduate school in Idaho and Utah, and Ittner having visited Arizona.

Munoz and I independently searched for the Say's Phoebe the following day (1 October) without success.

Say's Phoebe was given hypothetical status by E. Milby Burton in his Supplement to *South Carolina Bird Life* (1971, p. 641-642) on the basis of a single bird seen in Richland County on 18 January 1969 (Chat 35:112). The species has also been seen once in Wake County, N.C., on 23 October 1965 (Chat 30:28-29).

[NOTE: A specimen, suitable photograph, or a third adequately documented sight record will be required to remove this species from the South Carolina hypothetical list.—JRH]

First Record of Vermilion Flycatcher in North Carolina

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15 February 1981

The *Checklist of North Carolina Birds* (J.F. Parnell, Chmn. CBC Records Committee, 1978, CBC and N.C. State Museum, p. 36) includes the Vermilion Flycatcher (*Pyrocephalus rubinus*) among the species that probably would warrant hypothetical status if the published record contained adequate details for documentation. The Vermilion Flycatcher discussed here was mentioned in *American Birds* (27:43, 1973).

Gard Otis, Sebastian Patti, and I met Paul DuMont and Robert Ake on the Outer Banks of North Carolina the afternoon of 1 October 1972. They told us that they had just seen a Vermilion Flycatcher perched on the fence of the waterworks at Nags Head, Dare County, N.C. An hour later, the three of us found the bird in the same place. We decided it was an immature male because it had red underparts with a mottling of dark feathers. The bird flew from its perch several times, and we had ample time to observe it at close range through binoculars and spotting scopes. To the best of my knowledge, this bird was the first Vermilion Flycatcher found in North Carolina, and there are no subsequent published reports. A specimen and several additional sightings have been reported from South Carolina (South Carolina Bird Life, 1971, p. 614-615).

Unusual Behavior of a Barred Owl

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At 2000 EDT on 20 August 1979, I saw a Barred Owl (*Strix varia*) hang upside down by one foot from a limb of an oak tree in the back yard of my home in Awendaw, Charleston County, S.C. I had watched the owl perched in its normal upright position for about 5 minutes from a distance of about 25 yards. From its perch about 25 feet above ground, the bird alternately scanned the ground and looked toward me and my German Shepard. It then flew toward another oak set back from the first by about 4 yards. As it neared the tree, the owl brought its feet forward, grasped a branch with one foot, and hung upside down for at least 8 seconds. Its wings were fully spread the entire time, and it was facing the dog and me. It is possible that the owl was exercising a scare tactic directed at the dog. Lill (Auk 96:489-498) documented a Superb Lyrebird (*Menura superba*) using the wing-spread character in a threatening posture. The lyrebird reacted in this manner to Lill's inspection of her nest containing fledglings.

Specimen Record of a Smith's Longspur from Chatham County, N.C.

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North Carolina State Museum of Natural History
Raleigh, N.C.
JOHN CONNERS
Raleigh Department of Recreation
Raleigh, North Carolina

26 March 1981

While searching a large field in eastern Chatham County, N.C., for Short-eared Owls (*Asio flammeus*) on 11 January 1981, John Conners, Beth O'Neill, and Don Tarbet encountered a passerine species unfamiliar to them. The bird flew to an altitude of approximately 75 feet and dropped to the ground. It was noted that a conspicuous white shoulder patch and solid white outer tail feathers were present when the bird flushed. Metallic clicking notes were heard as the bird flew. While it perched in a small Sweet Gum (*Liquidamber styraciflua*), further field marks were seen: conical bill, buffy breast and abdomen, a dark cheek patch, and a light eye ring. After consulting field guides, the observers decided that the bird was a Smith's Longspur (*Calcarius picta*). Fran and Wayne Irvin saw the bird 1½ hours later and agreed with the identification. The longspur was seen eating seed from one of the abundant plant species in the field, Three Awn Grass (*Aristida oligantha*).

The field had been subject to intensive agriculture for many years and was abandoned 4 years ago. It is now characterized by extensive erosion and typical old-field plant species: blackberry (*Rubus* sp.), Broomsedge (*Andropogon virginicus*), and Sweet Gum. Contiguous with this field is a vast prairie created 3 years ago by clearcutting an alluvial forest along the New Hope River in Chatham County. This is the unflooded site of the B. Everette Jordan Reservoir.

The bird was later collected by staff members of the North Carolina State Museum of Natural History and added to its collections (NCSM 7804). During preparation, Irvin noted several significant points: the cranium was completely ossified; the testes measured 1.4 x 1.7 mm and 1.0 x 1.7 mm; and the Bursa of Fabricius was atrophied. Thus no definite conclusions are possible regarding hatch year. Further, the distended crop was filled with seeds of Three Awn Grass, and the plumage was typical of an adult winter male. There was no evidence of ecto- or endoparasites; no molt was discernable. Additional relevant data include: weight, 28.4 gms; length, 155 mm; tarsus, 22 mm; wing chord, 90 mm; tail, 65 mm; wing span, 252 mm; eye color, dark brown; foot color, dark yellow and brown; upper mandible color, dark gray-brown throughout; lower mandible color, basal 2/3—horn, apical 1/3—as upper mandible.

Historically, Smith's Longspur has been seen infrequently in the East and Southeast. *Birds of the Carolinas* (1980, p. 393) indicates one published sight record of the species for North Carolina (Auk 65:456), and two published records for South Carolina. Loomis collected one in 1880 (Bull. Nuttall Orn. Club 6:115); he collected a second one in 1889 (Auk 8:167). There is one recent record for North Carolina. Marsh and Moffett saw a Smith's Longspur at Lake Surf in Moore County (Am. Birds 28:40), but details of the sighting remain unpublished. Other records for the East include one from Long Island, New York (Am. Birds 29:34), and two at Assateague Island, Maryland (Am. Birds 31:319).

With the publication of this note, Smith's Longspur is now formally recognized as occurring in North Carolina. Previously, it was on the Provisional List (Chat 44:59).

The authors thank Fran Irvin, Beth O'Neill, and Don Tarbet for their contributions to this manuscript.

BRIEFS FOR THE FILES

HARRY E. LeGRAND JR.

(All dates 1980 unless otherwise indicated)

HORNED GREBE: Steve Graves noted a flock of 74 grebes at Lake Wheeler, near Raleigh, N.C., on 18 November.

CORY'S SHEARWATER: Five pelagic trips off North Carolina from 28 August to 7 October yielded at least 100 individuals each, with peak totals, both on 28 August, of 209 off Oregon Inlet (Dave Lee) and 366 off Cape Lookout (John Fussell).

GREATER SHEARWATER: The only North Carolina pelagic trip recording this species in double figures was one off Oregon Inlet on 28 August, when Dave Lee saw 46 birds. This species seems to have declined in numbers off the coast during the past few years, and in summer and fall it is not now the fairly common to common bird that the literature indicates.

AUDUBON'S SHEARWATER: Three seen from shore at Bodie Island, N.C., on 4 October by Bob Lewis were notable, and 50+ seen by Dave Lee off Hatteras, N.C., on 20 November were quite late. The higher counts in North Carolina were 130 off Cape Lookout on 28 August (John Fussell), 111 off Oregon Inlet on 10 September (Dave Lee), and 110 off Hatteras on 7 September (Will Russell et al.)

BLACK-CAPPED PETREL: Three or four were of interest on 20 November, as reported by Dave Lee off Hatteras; one of the birds lacked the white rump patch. Excellent counts for North Carolina were 161 off Capes Lookout and Hatteras on 7 October (Robert Pitman), 55 off Hatteras on 7 September (Will Russell, Davis Finch, et al.), and 41 off Hatteras on 31 August (Greg Massey et al.).

WILSON'S STORM-PETREL: The only North Carolina total in triple figures was 183 off Oregon Inlet on 28 August, as noted by Dave Lee.

BROWN PELICAN: Bob Holmes observed 600 to 700 at Hatteras Inlet, N.C., on 7 December, an excellent count for the state.

ANHINGA: Seven were noteworthy near Sunset Beach, N.C., as seen by Philip Crutchfield and Kevin Mason on 17 August.

GREAT CORMORANT: Several immatures were observed this fall in North Carolina: one at Wrightsville Beach on 14 October (Ricky Davis), one at Hatteras Inlet on 28 November (Claudia Wilds), and one at Pea Island on 31 October (Allen Bryan) and probably the same bird there on 28 to 30 November (Claudia Wilds, Merrill Lynch, Julie Moore).

DOUBLE-CRESTED CORMORANT: Inland reports, all in North Carolina, were: one on Lake Cammack near Burlington from 3 to 11 August (Allen Bryan), one at Lake Surf near Vass on 4 September (Jay Carter, Tim Stamps), three near Fayetteville on 13 October (Philip Crutchfield), three near Raleigh on 25 October (Fran and Wayne Irvin), and one to two on Quaker Lake in Alamance County from 16 to 29 November (Bryan).

MAGNIFICENT FRIGATEBIRD: Very late for South Carolina was an immature observed by Gardner Miller and party at North Island on 16 November.

CATTLE EGRET: This species is rare in the piedmont and the mountains in summer and fall. Thus, noteworthy were one near Townville, S.C., on 23 August (Harry LeGrand); three near Simpsonville, S.C., on 26 August (Alan Avakian); 10 at Beaverdam Reservoir north of Raleigh, N.C., on 28 September (Bill Wagner, Angelo Capparella); and 18 far inland at Old Fort, N.C., on 18 October (Robert Ruiz).

GREAT EGRET: One seen by Kevin Mason and Philip Crutchfield was quite late on 7 December near Fayetteville.

YELLOW-CROWNED NIGHT-HERON: One seen by Adair Tedards from 2 to 6 December, several miles E of Pendleton, S.C., was very late for a piedmont locality.

LEAST BITTERN: One seen on 9 August was noteworthy at Jordan Reservoir in eastern Chatham County, N.C., as reported by Allen Bryan and Bob Lewis.

WOOD STORK: The species was again present at the pond near Sunset Beach, N.C., this summer, with reports from 13 July to 30 August; the peak count was 12 on 13 July (Allen Bryan, Bob Lewis).

GLOSSY IBIS: One to two individuals were noted by Allen Bryan, Steve Graves, and others at Jordan Reservoir from 23 August to 28 September.

WHITE IBIS: Inland reports of note were 33 at Beaverdam Reservoir on 30 August (Steve Graves, Bill and Margaret Wagner) with one late there on 18 November (Wagners, Johnnie Payne), three at Holts Lake in Johnston County, N.C., on 11 August (Tom Haggerty), and one near Lenoir, N.C., on 28 August (Les Hines).

WHISTLING SWAN: One seen by Charlotte Gantz at Lake Surf on 26 November was a good find.

SNOW GOOSE: North Carolina reports away from the normal wintering range were: an immature in blue phase at Carolina Beach on 21 October (Ricky Davis), an immature white-phase bird at Cape Lookout on 1 November (Skip Prange), another immature white bird at Jordan Reservoir on 28 November (Jim McConnell et al.), and an adult in blue phase at Lake Pinehurst on 28 November (Marion Jones et al.).

FULVOUS WHISTLING-DUCK: The only fall report was that of six birds seen by Edmund Farrar at Magnolia Gardens near Charleston, S.C., on 20 September.

NORTHERN SHOVELER: One was very early at Clemson, S.C., on 7 September, as noted by Harry LeGrand and Sid Gauthreaux.

WHITE-WINGED SCOTER: An excellent inland find was a female seen by Jim McConnell and Michael Schultz at Jordan Reservoir on 1 December.

SURF SCOTER: Very rare inland was an immature seen by Allen Bryan on Lake Cammack on 20 October.

COMMON MERGANSER: A male was observed by Philip Crutchfield and party at Pamlico Point in Pamlico County, N.C., on 22 November.

MISSISSIPPI KITE: A good count for Sumter, S.C., was 16 birds, all immatures, seen on 28 August by Evelyn Dabbs and Ramona Snavely.

BROAD-WINGED HAWK: Tom Haggerty observed 446 hawks at Stone Mountain State Park, N.C., on 22 September, and Mike Tove counted 239 hawks on 26 September along the Blue Ridge Parkway in southern Haywood County, N.C. Perry Nugent and Gardner Miller noted a late immature at Santee National Wildlife Refuge on Lake Marion, S.C., on 22 November.

GOLDEN EAGLE: The only report for the fall was that of an adult seen flying SW over Swannanoa, N.C., on 16 October by Robert Ruiz.

BALD EAGLE: Adults were seen at three localities in Forsyth County, N.C.: on 23 August by Pat Culbertson and Jerry Shiffert, on 1 November by Bert Hollifield, and on 20 November by Ramona Snavely and party. An adult near Raleigh on 25 October was noted by Fran and Wayne Irvin.

PEREGRINE FALCON: Rare inland in North Carolina were single birds in southern Haywood County on 26 September (Mike Tove), at Beaverdam Reservoir on 29 September (Steve Graves), along the Chowan River south of Gatesville on 3 October (John Funderburg), and at Raleigh on 13 November (Rex Schmidt).

MERLIN: An excellent number of inland birds were reported this fall. In South Carolina one was near Townville on 5 October (Sid Gauthreaux, Harry LeGrand). In North Carolina were one at Crowders Mountain State Park on 24 September (Paul Hart, Jack Greene), two at Beaverdam Reservoir on 27 September (Steve Graves, et al.) and one there on 2 October (Mike Tove), one at Jordan Reservoir on 27 September (Fran and Wayne Irvin), one near Burlington on 20 October (Allen Bryan), and one near Chapel Hill on 7 November (Bill and Margaret Wagner).

SANDHILL CRANE: Gardner Miller and party observed four birds near Charleston on 14 December.

VIRGINIA RAIL: One at Jordan Reservoir on 2 August, and the same bird or another there on 30 August, as noted by Allen Bryan, might have been summer residents.

YELLOW RAIL: One flushed by John Fussell at North River marsh, near Beaufort, N.C., on 25 October was an outstanding find.

BLACK RAIL: Perry Nugent, Steve Compton, and Gardner Miller heard one that answered a taped call at dawn at Huntington Beach State Park, S.C., on 12 October.

PURPLE GALLINULE: A very late record was an immature seen at Sunset Beach, N.C., on 8 November by Philip Crutchfield and others.

BLACK-NECKED STILT: Rare for Huntington Beach State Park were two individuals seen by Pat and Renee Probst on 16 and 17 August.

AMERICAN AVOCET: A very rare inland record was an avocet at Beaverdam Reservoir, where it was seen on 31 August by Angelo Capparella, Jay and Lois Garner, and others. Notable coastal sightings were two at Huntington Beach State Park on 16 and 17 August (Pat and Renee Probst), five near Fort Macon State Park, N.C, on 17 August (John Fussell), eight at Charleston harbor on 6 October (Pete Laurie et al.), and nine at Charleston harbor on 25 November (Lynn DeMille).

WILSON'S PLOVER: Brainard Palmer-Ball observed 200 near Beaufort, N.C., on 2 August, an excellent Carolina total.

AMERICAN GOLDEN PLOVER: Single birds were seen along the coast this fall in North Carolina at Pea Island, Ocracoke Island, Cape Hatteras, Fort Macon, and Sunset Beach (on 8 November), and at two localities near Charleston. Ten were noted by Will Russell and party in the Bodie-Pea Island area on 6 September. At Beaverdam Reservoir this plover was seen from 25 September to 2 October, with a peak of 12 on 29 September (Bill and Margaret Wagner et al.).

BLACK-BELLIED PLOVER: Good inland finds were single birds seen by Alan Avakian and others at Clemson on 24 August, by Bill and Margaret Wagner at Beaverdam Reservoir on 2 September, and by Jim and Elizabeth Pullman at Parkwood Lake south of Durham, N.C., on 10 September.

LONG-BILLED CURLEW: Claudia Wilds observed one at the southwestern tip of Ocracoke Island on 28 November.

UPLAND SANDPIPER: One seen at Raleigh on 3 September by Fran and Wayne Irvin was a rare fall record for that city. The only coastal report of note was that of a large flock present at the Wilmington airport from 28 July to 28 August. Ricky Davis observed 20 there on 8 August and 31 on 14 August.

GREATER YELLOWLEGS: Steve Graves saw an individual on 7 November at Umstead State Park near Raleigh.

WILLET: Quite rare inland were single birds found at Jordan Reservoir on 22 August (Steve Graves), at Beaverdam Reservoir on 30 August (Steve Graves, Bill and

Margaret Wagner), and at Santee refuge on 30 August (Evelyn Dabbs, Ramona Snavely).

SPOTTED SANDPIPER: One noted by Steve Graves at Chapel Hill was late on 3 November.

RUDDY TURNSTONE: Dan Kaplan and others saw one at Beaverdam Reservoir on 1 September; five were seen there on 29 September by Steve Graves, and one was present on 2 October (Mike Tove).

WILSON'S PHALAROPE: The species has increased dramatically throughout the East in the last decade, and Carolina records this fall were almost too numerous to mention. Inland reports were of single birds at Jordan Reservoir on 6 September (Steve Graves et al.) and again from 20 to 28 September (m.ob.), and at Beaverdam Reservoir on 27 September (Steve Graves). Along the coast were eight at Bodie and Pea Islands on 16 August (Bob Lewis, Harry LeGrand, Allen Bryan), one at Ocracoke Island on 17 August (Ricky Davis), four at Fort Macon on 24 August (John Fussell), and two at Huntington Beach on 16 and 17 August (Pat and Renee Probst).

NORTHERN PHALAROPE: Good pelagic counts for North Carolina were 75 seen off Hatteras on 17 August by Paul DuMont and party, 93 seen off Oregon Inlet on 21 August by Dave Lee, and 89 in the latter area noted by Lee on 28 August. Along the coast were four seen at Huntington Beach State Park on 16 and 17 August (Pat and Renee Probst), one seen at the northeastern end of Ocracoke Island on 17 August (Ricky Davis), and another on Beacon Island in Ocracoke Inlet on 6 September (Davis).

RED PHALAROPE: An excellent find was an individual seen by Allen Bryan, Ken Knapp, and others at Beaverdam Reservoir on 28 and 29 September. Two seen off Hatteras by Paul DuMont and party on 17 August were somewhat early.

COMMON SNIPE: John Fussell noted an early snipe on 8 August at North River near Beaufort, N.C.

SHORT-BILLED DOWITCHER: The only notable inland reports were as many as eight birds at Clemson on 23 and 24 August (Harry LeGrand), and individuals at Jordan Reservoir from 9 to 30 August, with eight on 11 August (Allen Bryan, Bill and Margaret Wagner).

LONG-BILLED DOWITCHER: One seen and heard near Townville on 21 September by Harry LeGrand and Sid Gauthreaux was the second record for the Clemson area.

SANDERLING: Good inland records were single birds at Jordan Reservoir on 22 and 23 August (Steve Graves, Allen Bryan) and at Clemson on 31 August and 7 September (Harry LeGrand, Sid Gauthreaux).

SEMIPALMATED SANDPIPER: A good inland count of 80 birds was noted at Clemson on 7 September by Harry LeGrand.

WESTERN SANDPIPER: Harry LeGrand and Sid Gauthreaux observed 40 in the Clemson area on 23 August.

WHITE-RUMPED SANDPIPER: This species is seldom seen inland in fall; thus, one seen by Steve Graves at Jordan Reservoir on 22 August was notable.

BAIRD'S SANDPIPER: The only coastal report was of a single bird seen at South Pond on Pea Island on 18 August by Harry LeGrand, Bob Lewis, and Allen Bryan. LeGrand also noted one at Clemson on 23 and 24 August.

DUNLIN: Single birds on 9 September were observed at Jordan Reservoir by Angelo Capparella and at Beaverdam Reservoir by Bill and Margaret Wagner. An excellent inland count of 30 was made at Beaverdam on 2 November by Mike Tove.

STILT SANDPIPER: Noteworthy inland counts were six at Jordan Reservoir on 20 September (Allen Bryan), seven at Clemson on 21 September (Sid Gauthreaux, Harry LeGrand), and three at Beaverdam Reservoir on 2 October (Mike Tove).

BUFF-BREASTED SANDPIPER: Individuals were reported at Bodie and Pea Islands from 16 August to 6 October, with a peak of four birds; six were found near Charleston from 9 to 11 September by Perry Nugent. An exceptional inland count was 14 near Clemson on 14 September (Harry LeGrand, Sid Gauthreaux). Others inland were one at Santee refuge on 30 August (Evelyn Dabbs, Ramona Snavely), one at Winston-Salem on 5 and 6 September (Ramona Snavely et al.), a peak of three at Beaverdam Reservoir from 30 August to 8 September (Steve Graves, Bill and Margaret Wagner), and a peak of four at Lake Surf from 4 to 8 September (Jay Carter, Tim Stamps, et al.).

LONG-TAILED JAEGER: Extremely rare for the fall season was an adult observed by Paul DuMont, Richard Rowlett, and party off Hatteras on 17 August. A single unidentified jaeger was noted on the above trip as well as off Oregon Inlet on 28 August by Dave Lee.

GLAUCOUS GULL: A very early report was an individual in second-fall plumage at Morehead City, where it was seen by John Fussell from 21 September to 5 October.

LESSER BLACK-BACKED GULL: Sightings of adults in northeastern Pamlico County on 24 October (Philip Crutchfield et al.) and Bodie Island on 6 December (Bob Holmes) added to the rapidly growing number of records for North Carolina.

HERRING GULL: One was quite early on 27 September, as seen by Tom Howard at Lake Surf.

RING-BILLED GULL: A good count for Lake Surf was 200+ noted on 13 November by Tom Howard.

BONAPARTE'S GULL: Renee Probst observed an early individual on 16 August at Huntington Beach State Park.

GULL-BILLED TERN: The species is seldom seen in North Carolina after September; thus, very late were two seen by John Fussell at Beaufort on 4 October.

FORSTER'S TERN: Tom Howard noted one at Lake Surf on 27 September, and Philip Crutchfield saw another at Fayetteville on 28 October.

COMMON TERN: One was seen by Dick Thomas near Southern Pines, N.C., on 7 August, and 17 birds were notable at Winston-Salem on 29 September, as recorded by Pat Culbertson. A good coastal count of 3000 was reported by John Fussell at Beaufort, N.C., on 22 September.

SOOTY TERN: Rare onshore was an immature seen by Skip Prange on mudflats at Portsmouth Island, N.C., on 21 August. The only offshore sighting was of three birds off Oregon Inlet on 10 September (Dave Lee).

CASPIAN TERN: From three to five individuals were noted at Beaverdam Reservoir from 31 August to 3 September by the Wagners and others; five were seen by Tom Howard on 27 September at Lake Surf.

BLACK TERN: Tom Haggerty observed one near Four Oaks, N.C., on 17 August.

BLACK SKIMMER: Casual inland was an immature seen at Jordan Reservoir from 30 August to 6 September by Allen Bryan and others.

YELLOW-BILLED CUCKOO: One seen on 2 November at Clemson by Harry LeGrand and Sid Gauthreaux was several weeks late, and an excellent count was 50 at Cape Lookout, N.C., on 12 October (John Fussell, Larry Crawford, R.J. Hader).

BLACK-BILLED CUCKOO: Highly significant was the discovery of an active nest by Bill Duyck in the spruce-fir forest at Devil's Courthouse in northern Transylvania

County, N.C., on 8 September. The adults were photographed. A migrant was rare near Fayetteville on 15 October (Philip Crutchfield).

LONG-EARED OWL: One seen by Gardner Miller and others on North Island, near Georgetown, S.C., on 16 November was an excellent find.

CHUCK-WILL'S-WIDOW: John Fussell heard one calling near Morehead City on 19 September, probably a representative departure date for the species.

COMMON NIGHTHAWK: A good coastal count of 200+ was noted by Steve Compton at Sullivans Island, S.C., on 6 September.

RED-COCKADED WOODPECKER: Three individuals and 11 cavity trees were observed by Tom Haggerty at Johnston Technical College near Four Oaks, N.C., during the fall.

EASTERN KINGBIRD: Ricky Davis noted a late bird on the campus at UNC—Wilmington on 1 November.

GRAY KINGBIRD: Single birds rare for South Carolina were along the coast near Georgetown on 31 July (Cliff Ester) and far inland at Santee refuge on 25 October (Jimmy Beatty, Lex Glover, John Paquet).

WESTERN KINGBIRD: There were six fall reports, all from coastal North Carolina, spanning the period from 9 October to 1 November.

YELLOW-BELLIED FLYCATCHER: Evelyn Dabbs mist-netted individuals at Sumter, S.C., on 8 and 9 September, and another was seen at Chapel Hill on 13 and 14 September by Steve Graves and others.

"TRAILL'S" FLYCATCHER: Individuals were netted by Evelyn Dabbs at Sumter on 13 and 20 September, but whether the birds were Alders or Willows could not be determined.

LEAST FLYCATCHER: Evelyn Dabbs netted two at Sumter on 9 September. Although observers in the field report *Empidonax* flycatchers rather infrequently in fall, these birds are far less uncommon than the records indicate, based on mist-netting results. Netting at Clemson throughout the fall yielded more than a dozen individuals of this genus, including a Yellow-bellied, many Traill's, and several Leasts (Paul Hamel, Harry LeGrand, et al.).

OLIVE-SIDED FLYCATCHER: A very rare record for South Carolina was an individual studied at leisure through a scope near Clemson on 23 August by Harry LeGrand.

TREE SWALLOW: Good numbers inland in the fall season were 100+ at Beaverdam Reservoir on 28 September (R.J. Hader et al.) and 100+ near Jordan Reservoir on the following day (Bill and Margaret Wagner).

ROUGH-WINGED SWALLOW: An individual was exceptionally late near Pendleton, S.C., on 8 November. It was sitting on a telephone wire and was studied at very close range by Harry LeGrand and party.

CLIFF SWALLOW: Rather rare along the coast were single migrants seen at Wrightsville Beach on 7 August by Ricky Davis and near Beaufort, N.C., on 8 August by Brainard Palmer-Ball.

COMMON RAVEN: One was seen by Steve Compton at Caesar's Head, S.C., on 28 November. Most raven reports for the state's mountain region have been during the summer.

FISH CROW: A record count for northwestern South Carolina was a flock of 30 seen and heard near Townville by Paul Hamel and Harry LeGrand on the late date of 30 November.

WINTER WREN: One was extremely early on 14 September at Chapel Hill, as noted by Steve Graves and party.

BEWICK'S WREN: An individual seen well by Philip Crutchfield was quite unusual near Fayetteville on 30 August.

SWAINSON'S THRUSH: Gail Whitehurst observed a late bird at Raleigh on 2 November.

VEERY: One was found dead at Pine Knoll Shores on Bogue Banks, N.C., in mid-October by Larry Crawford. This species is quite scarce in fall along the coast.

SOLITARY VIREO: One was approximately 6 weeks early on 1 September in the Francis Marion National Forest, S.C. (Steve Compton).

PHILADELPHIA VIREO: Evelyn Dabbs banded individuals at Sumter on 11 and 22 September; others were seen near Burlington on 1 October by Allen Bryan, near Charleston on 4 October by Perry Nugent, and near Durham on 12 October by Johnnie Payne.

WARBLING VIREO: An exceptional report for the coast in fall was one seen at Fort Fisher, N.C., on 9 September by Ricky Davis. He observed the vireo bill, grayish upperparts without yellow sides, a lack of wing bars, and a light stripe over the eye without any dark facial markings.

GOLDEN-WINGED WARBLER: Good finds for the coastal plain were individuals noted at McCain, Hoke County, N.C., on 20 August (Libba Watson) and near Brogden, Johnston County, N.C., on 30 August (Tom Haggerty).

BLUE-WINGED WARBLER: Notable for the coast were two seen by Skip Prange at Cape Lookout, N.C., on 5 September, and three observed near Charleston on 4 October by Perry Nugent.

ORANGE-CROWNED WARBLER: One was seen by Steve Graves at Chapel Hill on 27 October, and another was late at Clemson on 29 November, when noted by Harry LeGrand. Several reports in mid-September were deemed to have been incorrectly identified, because this species is extremely rare in the Carolinas before October and because of confusion with several other species, especially the Tennessee Warbler.

NASHVILLE WARBLER: One was rather early at Chapel Hill on 13 September (Steve Graves), and a first North Carolina Sandhills record was an individual near McCain on 7 October (Jay Carter, Tom Howard). An excellent count was four seen by John Connors and Paul Smithson at Beaverdam Reservoir on 11 October. Perry Nugent noted birds at Charleston on 4 October and Huntington Beach State Park on 12 October.

CAPE MAY WARBLER: One seen by Gardner Miller, Perry Nugent, and others was very late at Seabrook Island, S.C., on 29 November.

CERULEAN WARBLER: Rare fall sightings were made by Sid Gauthreaux at Clemson on 7 September, by Perry Nugent near Charleston on 4 October, and by Philip Crutchfield at Fayetteville on 13 October.

CONNECTICUT WARBLER: One was observed in early October near Durham by Johnnie Payne, and one seen well (and described in full) by Perry Nugent and party was extremely late on 15 November at Seabrook Island.

WILSON'S WARBLER: Notable for the Asheville, N.C., area were two seen at Swannanoa on 27 September by Jean Gertz and party.

BREWER'S BLACKBIRD: A male and a female were rare at Raleigh on 25 October, as reported by Gail Whitehurst.

DICKCISSEL: Ricky Davis again noted this species in fall at Fort Fisher; one was there on 4 October.

EVENING GROSBEAK: A good flight occurred into the Carolinas this fall, being first noted in early November. Grosbeak numbers during the previous two winter seasons had been rather low.

HOUSE FINCH: Noteworthy records for the Outer Banks of North Carolina were one seen at Buxton on 9 October by Greg Hanisek, and a male observed at Bodie Island on 24 November 1973 by Harry and Edmund LeGrand. Two were uncommon at Asheville on 7 to 9 November (Bill Duyck), as were six at Fayetteville on 28 October (Philip Crutchfield).

PINE SISKIN: As with the Evening Grosbeak, large numbers were present in the Carolinas by late fall, with the earliest arrivals occurring in mid-October.

GRASSHOPPER SPARROW: A rare record for Carteret County, N.C., was one seen by John Fussell along the boundary with Craven County on 3 October. Dennis Forsythe picked up a dead individual in Mount Pleasant, S.C., on 6 December.

HENSLOW'S SPARROW: Approximately five were observed by John Fussell, Merrill Lynch, and others in western Carteret County on 12 and 13 November. This locality is the site where at least one wintered last year, and thus these birds were probably on their wintering grounds.

LE CONTE'S SPARROW: One seen by Gardner Miller and party was noteworthy on North Island, S.C., on 16 November.

LARK SPARROW: The first record for Forsyth County was an individual seen by Ramona Snavely and others at Winston-Salem on 5 and 6 September.

DARK-EYED JUNCO: One noted by Libba Watson was early at McCain, N.C., on 24 September.

TREE SPARROW: One was extremely early at Chapel Hill on 27 October, as observed by Steve Graves.

CLAY-COLORED SPARROW: For the fifth consecutive fall, Ricky Davis noted the species at Fort Fisher, with one seen on 1 November.

WHITE-CROWNED SPARROW: Good totals for Carteret County were four at Cape Lookout on 12 October and four again on 26 October (John Fussell et al.).

LINCOLN'S SPARROW: Six birds were netted at Clemson by Paul Hamel, Harry LeGrand, and others from 4 October to 6 November. The only other fall reports were one at Chapel Hill on 27 October (Steve Graves), and two near Townville on 2 November (Harry LeGrand).

LAPLAND LONGSPUR: Two were observed on Core Banks, N.C., by Chip Davis and Riley Hoggard on 4 November.

SNOW BUNTING: This species staged its best fall flight into the Carolinas in perhaps a decade, with all records being coastal. Approximately 90 were seen by Sue and Ecky Meadows at Pea Island in late November, 34 were noted at Salvo, N.C., on 19 November by Fran and Wayne Irvin, 22 were seen by Claudia Wilds at Ocracoke on 28 November, and one was seen at North Island on 16 November by Gardner Miller and party.

PELAGIC TRIP OFF CAROLINA BEACH, N.C.: A group of birders led by Greg Massey made a trip from this town to a point nearly 50 miles offshore on 4 October. Because most pelagic trips taken to the south of Beaufort Inlet have been disappointing, the noteworthy results of this very successful trip are presented in full. All the following species were observed at least 10 miles from shore: Cory's Shearwater 23, Greater Shearwater 2, Sooty Shearwater 1, Audubon's Shearwater 3, shearwater (sp.?) 14, Wilson's Storm-Petrel 1, Little Blue Heron 1, Snowy Egret 9, Marsh Hawk 1, Peregrine Falcon 1, Short-billed Dowitcher 1, Northern Phalarope 4, Arctic Tern 4 (underwing pattern compared with nearby Common Terns), Bridled Tern 2, Mourning Dove I, Palm Warbler 2, American Redstart 1.

BOOK REVIEWS

STORIES ABOUT BIRDS AND BIRD WATCHERS

Mary Beacom Bowers, ed. 1981. Atheneum, 597 Fifth Avenue, New York, N.Y. 10017. Illus. by Bob Hines. 234 p. Hardcover, $12.95.

RANDOM RAMBLINGS OF AN EVERYDAY BIRDWATCHER

Yulee Larner. 1980. Ramblings, 1020 W. Beverley Street, Staunton, Virginia 24401. Illus. by Mary Pemberton. 60 p. Softcover, $4.60 ppd. (Virginia residents add 16¢ tax.)

If you enjoy the Backyard Birding department of *Chat* and informal nature essays in general, you will want to read both of the books listed above. *Stories About Birds and Bird Watchers* is a collection of choice articles from *Bird Watcher's Digest*, which has been edited since its debut in 1978 by Mary Bowers, a native Tar Heel and a graduate of the University of North Carolina. Mrs. Larner is a nature columnist for the *Staunton News-Leader* and chairman of the records committee of the Virginia Society of Ornithology. Some of her columns have been reprinted in BWD.

The informal essay has an honorable place in the ornithological literature. It can attract and educate people who appreciate the beauty of nature but are not yet ready for scientific papers. It can toss out ideas not adequately documented for formal publication and encourage people to confirm or refute those ideas. It can stimulate curiosity and enthusiasm. It can promote conservation. It can preserve the human side of bird study, the meaningful personal experiences that almost never appear in the pages of scientific journals.

I have just one complaint about BWD and numerous other publications that cater to the needs of the amateur naturalist. Their editors almost to the very last one follow style manuals that dictate treating the English names of birds as common nouns. I believe that common names duly adopted by an appropriate scientific body are proper nouns and should begin with capital letters. Then the reader is not left to wonder if the writer means the species Common Tern or just any old tern that is common in the given area. After all, a Common Tern may be not at all common at certain times and places. Can you imagine the possibilities for confusion in a sentence about a rare common tern? Mrs. Larner, with her background in scientific publication, wisely uses up-style in her book. I hope other editors of popular nature publications will soon follow her fine example.—EFP

[NOTE: *Bird Watcher's Digest* appears bimonthly. Subscriptions are $9 per year from BWD, P.O. Box 110, Marietta, Ohio 45750. The March/April 1981 issue has an article by Lee Jones, a North Carolinian who went to California to attend graduate school and now has a Ph.D. and his own business in Topanga.—ED.]

ON THE ROAD WITH JOHN JAMES AUDUBON

Mary Durant and Michael Harwood. 1980. Dodd, Mead & Company, New York. Several hundred black-and-white photographs. 638 p. $19.95

The authors, a husband-and-wife team of professional writers, spent 13 months retracing the travels of Audubon from Mill Grove, Pennsylvania, to the Dry Tortugas, Texas, Labrador, and Montana. Using the artist's voluminous writings as a guide, they looked for the places he described and tried to find descendants of people who knew and even entertained Audubon. Most nights, they camped in a tent and bemoaned the unkempt condition of many camp grounds. They looked for birds in the places where

Audubon found them, sometimes with success and sometimes not. The Carolinas are well covered, of course.

I found the book highly entertaining, with many insights into Audubon's character, as well as that of his wife, Lucy Bakewell. Audubon's weaknesses and strong points are thoroughly explored. Besides a general index, there is a bird index with fascinating names: tickle-asses, tinkers, tell-tale godwits, loppers, Cincinnati gulls, and bullbirds. It was a personal satisfaction to me that Audubon confused the Lesser Scaup and the Greater Scaup, my own *bete noir.*—LOUIS FINK

BACKYARD BIRDING

(Continued from page 40)

Like Catchin' Fish in a Barrel

Red-shouldered Hawks are permanent residents along Moccasin Creek, which forms the boundary between Wake and Franklin Counties near Zebulon, N.C. At all seasons of the year these birds hunt for snakes, salamanders, frogs, and ditch eels (Amphiuma) in the many small wooded tributaries, including the spring at the bottom of my hill. On many occasions I have seen small birds freeze or take cover when a hawk circled the yard. Once the neighborhood birds mobbed a Red-shouldered as it innocently tried to dine on a freshly caught Amphiuma. This gave me the impression that small birds do not distinguish between Red-shouldered Hawks, which prefer aquatic prey, and the other buteos, which are more likely to take warm-blooded prey. However, the events of 30 and 31 January 1981 strongly suggest that small birds do know one hawk from another.

Light snow began falling the morning of the thirtieth. By noon the ground was lightly covered, and before nightfall 2 or 3 inches had accumulated locally. About 0900 a subadult Red-shouldered Hawk perched in a tree some 25 feet beyond the feeder farthest from the kitchen window. Many small birds—Cardinals, Pine Siskins, Purple Finches, Dark-eyed Juncos, White-throated Sparrows, Carolina Chickadees, Tufted Titmice, Pine Warblers, and assorted woodpeckers—continued to feed and remained undisturbed even when the hawk took flight.

About 1030 the next day, the Red-shouldered sailed past my study window, apparently en route from the feeding area to the spring. At 1615 the big bird was again perched near the feeders, and the small ones again appeared unconcerned, although they prudently avoided drinking from the water trickling over a rock at one end of the fish pool, almost directly under the hawk. The moving water maintains a small circle of open water at the base of the rock even when the rest of the surface is frozen solid, as it was on the thirty-first. I watched the hawk constantly, hoping to get a good look at the wing linings when the bird flew. The hawk was obviously alert and watching for prey, but it made no attempt to molest the feeding birds—not even the one bold soul that perched on a limb no more than 10 feet above its head. About 1650 the hawk suddenly dropped to the small circle of open water. Although the bird's head, body, and feet were hidden by a rock, I could see the wings flapping several times before they came to rest held partly open by the rocks on each side of the bird. The hawk raised its head and stood motionless. A few moments later it hopped to a flat rock nearby, clutching a large frog, apparently a Bullfrog because the venter was white with many dark spots. A minute later the hawk flew away with its prey. "Like catchin' fish in a barrel," I thought. Although the small birds paid no attention to the successful hunting expedition, they returned to drink at the pool shortly after the hawk departed.—ELOISE POTTER, Route 3, Box 114AA, Zebulon, N.C. Zebulon, N.C. 27597

Carolina Bird Club

INC.

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Carolina Bird Club, Inc., is a non-profit educational and scientific association founded in March 1937 and open to anyone interested in the study and conservation of wildlife, particularly birds. Dues, contributions, and bequests to the club are deductible from State and Federal income and estate taxes. Checks should be made payable to Carolina Bird Club, Inc., and sent to CBC Headquarters, P.O. Box 1220, Tryon, N.C. 28782.

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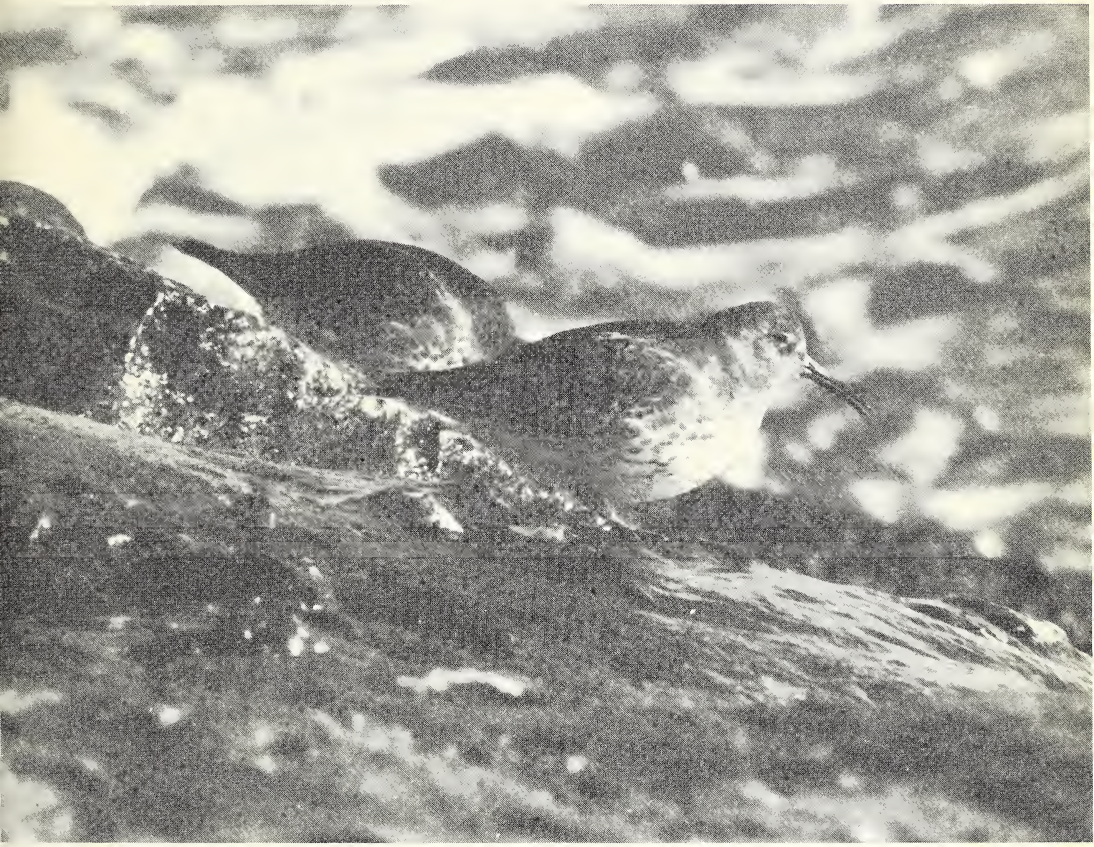

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OUR COVER—Fall shorebird migration actually begins in summer for most species, but the Purple Sandpiper has not been recorded in the Carolinas before October. Look for it throughout the winter on coastal jetties. Photo by David Lee.

COWBIRDS IN THE CAROLINAS

ELOISE F. POTTER and GAIL T. WHITEHURST

Abstract.—The first fledgling Brown-headed Cowbird was seen in the Carolinas in 1933. Since that time the species has been reported during the breeding season from all sections of the two states, although it appears at present to be generally more numerous in North Carolina and western South Carolina than in eastern South Carolina. Rufous-sided Towhees, Red-eyed Vireos, Solitary Vireos, Wood Thrushes, Dark-eyed Juncos, and Chestnut-sided Warblers are the most frequently reported of the 29 host species recorded in the Carolinas. Host selection and egg-laying behavior have been well studied in the Brown-headed Cowbird, but much remains to be learned about the development of the young, particularly in regard to the relationship of the fledgling to the natural mother.

One of the first things the beginning bird student learns is that cowbirds lay their eggs in the nests of other birds. The tendency is to assume that cowbirds are not nice and to ignore them except when another species is needed for the local bird count. Nevertheless, these birds warrant our careful attention. The purposes of this paper are to review the history of the Brown-headed Cowbird (*Molothrus ater*) in North and South Carolina, to assess the present status of the species in the region, and to summarize the breeding habits of this brood parasite.

METHODS

A survey of records published in the two state bird books as well as in *Chat* and *American Birds* provided the early history of the cowbird in the Carolinas. From these sources and unpublished records, both our own and those of Carolina Bird Club members who responded to a request for information in *Chat,* we obtained data on 101 known cowbird eggs or young for the region. The great majority of these reports were sightings of hosts feeding fledgling cowbirds. Whitehurst's data are from her yard in a residential section of Raleigh, Wake County, N.C., where she feeds the birds regularly throughout the year. Potter's data are from her wooded yard adjacent to a golf course in rural eastern Wake County, 4.5 miles N of Zebulon, N.C. Additionally, Potter conducted field studies in southern Franklin County, N.C., which is the portion adjacent to eastern Wake County. She made 80 trips between 1 October 1975 and 30 September 1976. There are several large cattle farms in southern Franklin County, and each trip included a visit to one or more of these sites. Material on nesting habits is mostly from the general literature, but some details are based on personal observations of the authors and various other CBC members.

HISTORY OF COWBIRD BREEDING IN THE CAROLINAS

Although Brown-headed Cowbirds have long been known as winter residents in the Carolinas, the first positive evidence of egg laying was not found here until 1933. On 10 June 1933 someone brought Thomas D. Burleigh a week-old cowbird taken from a Red-eyed Vireo nest in Buncombe County, N.C. (Pearson et al. 1959, p. 355). On 17 July 1934 an unidentified warbler was seen feeding a cowbird fledgling at Clemson, S.C. (Sprunt and Chamberlain 1970, p. 506). In June 1939 immature cowbirds were noted at Hatteras village and Oregon Inlet (Pearson et al. 1959, p. 355). Evidence of breeding in central North Carolina came from Greensboro in 1943 (Chat 7:79), Durham in 1958 (Chat 23:20), Mecklenburg County in 1958 (Chat 22:84), Chapel Hill in 1959 (Chat 23:68), and Nash County in 1965 (Chat 29:89). On the southern coast breeding was first

TABLE 1. Number of Brown-headed Cowbird fledglings seen by Whitehurst and Potter in Wake County, N.C., 1969-1978.

Year	*1969*	*1970*	*1971*	*1972*	*1973*	*1974*	*1975*	*1976*	*1977*	*1978*
Whitehurst[1]	1	1	1	2	3	5	3	8	3	5
Potter[2]	0	0	0	1	0	1	0	0	1	1
Total	1	1	1	3	3	6	3	8	4	6

---

[1] Yard in Raleigh residential neighborhood; summer bird feeding program.

[2] Yard in rural woodlands adjacent to golf course; no summer bird feeding program.

noted in Charleston County, S.C., in 1965 (Chat 29:115) and near Wilmington, N.C., in 1967 (Chat 31:99).

In the early years (1933 to mid-1950s) reports of cowbird eggs or young were few and far between in the Carolinas. Some observers believed that migrating females laid eggs and continued moving northward (Pearson et al. 1959, p. 355). Although instances of such behavior cannot be eliminated as a possibility, one adult female certainly remained at Clemson, S.C., at least until late June to lay the egg that produced the fledgling being fed on 17 July 1934 (Sprunt and Chamberlain 1970, p. 506). Repeated sightings of adults and young in June, July, and August soon made it obvious that adult Brown-headed Cowbirds were remaining in the Carolinas all summer and that females were continuing to lay eggs well into July.

The second report of confirmed breeding did not come from Clemson until May 1957 (Chat 21:90); however, Gaston Gage (pers. comm.) indicates that cowbirds were present there throughout the summer of 1953, with 5 adults seen on 29 May, 5 adults on 26 June, 14 adults on 9 July, about 50 adults on 11 July, 2 immatures on 20 July, and about 15 (age not specified) on 5 August. Gage saw about 30 cowbirds, including some immatures, on 11 July 1954. Thus it is apparent that the cowbird breeding population was already well established in the Clemson area at the time of the 1957 report.

By the mid-1960s the species was parasitizing nests throughout the Carolinas, though it was still locally scarce or absent in the eastern piedmont and inner coastal plain. Wake County provides a good example of how unobtrusive cowbirds can be during the early years of local egg laying. Fifty cowbirds were reported on a bird count at Raleigh on 28 April 1956 (Chat 20:54). This suggests the probability of local breeding because Brown-headed Cowbird flocks disperse in late winter or very early spring (Bent 1958, p. 448-449). However, the first reported summer sighting of adult cowbirds did not occur until 26 and 27 June 1962 when Oliver H. Orr Jr. saw a male and a female at his home near Raleigh (N.C. State Museum records). Summer adults were first noted at Zebulon on 18 June 1966 when Potter saw two females and four males displaying on a green at the Zebulon Country Club. The first positive evidence of breeding in Wake County came in 1968 when R.J. Hader saw a juvenile following an adult Rufous-sided Towhee at Raleigh (Chat 32:81). Table 1 shows the number of cowbird fledglings seen each of the 10 years following 1968 by Whitehurst in Raleigh and by Potter in rural Wake County. In spite of the expected seasonal variations in nesting success and observer diligence, the general trend is decidedly upward.

J.H. Carter III (pers. comm.) says that cowbirds did not spend the summer in the Southern Pines area when he first became interested in birds in the mid-1960s. First, males began to linger into June. Then immatures began to appear in July and August, and adults of both sexes also began to show up in these months. By 1971 the species had

TABLE 2. Taken from computer print-outs of summary sheets for U.S. Fish and Wildlife Service Breeding Bird Survey Routes run in North Carolina from 1966 through 1978, the data below for routes run at least four times from 1966 through 1977 show 12-year means for two common cowbird hosts, the Rufous-sided Towhee and the Red-eyed Vireo, compared with the mean for the Brown-headed Cowbird. The cowbird mean is compared with the number of this species found on the same route in 1978. County designation applies to the starting point for each route, although some routes are known to extend into other counties. The number in parentheses following the county name indicates how many years that particular route was censused from 1966 through 1977.

Route	*Rufous-sided Towhee mean*	*Red-eyed Vireo mean*	*Brown-headed Cowbird mean/1978 total*
MOUNTAIN REGION			
Craven Gap, Buncombe (7)	21	3	3/ –
Fontana, Swain (4)	14	43	1/ 1
Cullowhee, Jackson (4)	28	32	8/13
Brevard, Transylvania (10)	22	11	2/ 1
NORTHERN COASTAL REGION			
Grandy, Currituck (5)	7	3	15/ --
Mashoes, Dare (7)	43	1	25/ --
WESTERN PIEDMONT REGION			
Copeland, Surry (10)	28	4	9/ 5
Call, Wilkes (8)	16	18	2/23
Mooresville, Iredell (4)	26	25	10/ 9
Climax, Guilford (12)	13	12	3/ 1
Madison, Rockingham (12)	21	2	3/ –
Saxapahaw, Alamance (12)	14	15	4/ –
SOUTHERN COASTAL REGION			
Merrimon, Carteret (10)	11	3	4/10
Ward's Corner, Pender (7)	40	8	1/ –
Myrtle Grove, New Hanover (11)	27	1	4/11
Shallotte, Brunswick (10)	35	6	2/18
EASTERN PIEDMONT REGION			
Arcola, Warren (7)	32	27	7/14
Youngsville, Franklin (12)	30	14	4/ 5
Jordan, Johnston (12)	23	8	3/ 0
INNER COASTAL PLAIN			
California, Hertford (5)	35	52	11/35
Beargrass, Martin (12)	19	3	2/ 2
Speed, Edgecombe (12)	18	9	1/ 6
Rosewood, Wayne (10)	11	4	1/ 0
Kinston, Lenoir (4)	11	2	2/ 2
Arapahoe, Pamlico (12)	28	5	4/ 6
Fairmont, Robeson (10)	21	4	2/ 0

become a permanent resident, though uncommon in summer and rare in midwinter (Carter 1971).

In North Carolina 26 U.S. Fish and Wildlife Service Breeding Bird Survey Routes have been run at least four times during the 12-year period from 1966 through 1977. The mean number of cowbirds for each of these routes is given in Table 2 along with the number of individuals reported in 1978. The highest cowbird means are from the Mashoes route in Dare County (25) and the Grandy route in Currituck County (15), both of which lie in the northeastern coastal region where the cowbird can be assumed to have been breeding more than 40 years. Cowbird means for the four mountain routes are surprisingly low, and probably are not typical of mountain localities having extensive agricultural development.

A 1977 report on the breeding birds in South Carolina State Parks (Chat 42:71-72) shows cowbirds to be present at 11 of the 14 units censused. The species was most numerous at Croft in Spartanburg County (18 birds), Huntington Beach in Georgetown County (8 birds), and Oconee in the mountains (5 birds). One to four cowbirds were at the other units reporting the species. Although cowbirds were found in all sections of South Carolina, they were encountered less frequently at parks in the southern portion of the coastal plain than elsewhere in the state.

PRESENT STATUS

From the various reports cited above, however scattered and fragmented they may be, we can see that the Brown-headed Cowbird extended its breeding range throughout the Carolinas during the 40 years between 1930 and 1970. During the 1970s the cowbird breeding population seems to have stabilized at a relatively low level in the regions first invaded (mountains, western piedmont, northeastern North Carolina) while an upward trend continued in recently invaded regions (eastern piedmont, southern coast, inner coastal plain). Today the Brown-headed Cowbird is generally fairly common throughout the Carolinas during the egg-laying season, but it remains locally scarce, perhaps even absent, in certain portions of the coastal plain. Although a long-term increase in the total cowbird breeding population in the Carolinas seems inevitable, this species shows no signs of ever becoming as numerous as the Starling and House Sparrow.

NESTING HABITS

Formerly a bird of the grassy plains of mid-North America, the Brown-headed Cowbird followed herds of bison and other wild grazing animals prior to the introduction of domestic cattle. The species gradually extended its range eastward and westward as the forests were cut and increased areas of cleared land were used for crops and pastures. No one can tell whether brood parasitism evolved as an adaptation to the species' feeding habits or simply made it possible for the Brown-headed Cowbird to occupy a previously vacant feeding niche. Whichever came first, the feeding strategy or the reproductive strategy, the system obviously works well for the Brown-headed Cowbird even though this species has none of the special adaptations (such as egg mimicry) characteristic of certain other brood parasites, most notably the Common Cuckoo (*Cuculus canorus*) of Eurasia and Africa.

Habitat requirements.—Although a few Brown-headed Cowbirds may feed and breed in the rather limited natural grasslands of eastern North America (e.g. grassy mountain balds, coastal marshes), the vast majority depend on man-made and man-maintained open areas such as pastures and golf courses. During the egg-laying season, many cowbirds also frequent woodland edges and residential neighborhoods with lots of shade trees. Here the female—usually accompanied by one or more males—perches in a tree, often a standing dead tree, that offers a clear view of the nesting activities of potential hosts. A good observation post appears to be essential to her success in locating nests suitable for parasitizing.

Working in the Otter Lake region of Michigan, the McGeens (1968) found that one female may cover from 12 to 40 acres, with a probable average of 25 acres. Overlapping ranges are not uncommon. Apparently the density of the cowbird population is relative to the number of host nests available per female cowbird.

Although there is no support from observations of banded birds, two Carolinians describe behavior that indicates strong site loyalty in breeding cowbirds. In June 1979 at Pendleton, S.C., Pamela M. Spencer noted in her yard a male cowbird that spent his time, when not feeding, perched atop a weather thermometer attached to the window of the house. He used the thermometer to wipe his bill after feeding, and he repeatedly displayed from this perch. The female perched in a large oak tree nearby. In March 1980 a pair of cowbirds arrived, the male perching regularly on the thermometer and the female in the same oak tree.

At Raleigh in the summer of 1979, Whitehurst had five young cowbirds that followed her about the yard, begging for food. Among the adults arriving in the spring of 1980 was one that immediately began following her and begging for food. Whitehurst strongly believes that one of the birds reared in the vicinity of her feeder in 1979 returned to the same area to breed in 1980.

Host species.—Herbert Friedmann, author of *The Cowbirds: A Study of the Biology of Social Parasitism* (1929), periodically summarizes data on cowbird host relations (Friedmann 1963). His most recent updating (Friedmann 1971) brings the total number of species parasitized by the Brown-headed Cowbird to 214, of which 121 are known to have reared cowbirds. Obviously many of the hosts are rare or accidental, and some of them (e.g. Mourning Dove, Purple Martin) have nesting habits that make them unsuitable foster parents for young cowbirds.

The Brown-headed Cowbird is the only regular brood parasite that is widely distributed in the parts of North America north of Mexico. Although its hosts range in size from the Blue-gray Gnatcatcher to the Mourning Dove, Lowther (1979) indicates that eggs of commonly used host species are generally smaller and less heavily marked than cowbird eggs. Egg size (volume) appears to be the most important visual cue for nest selection by female cowbirds. Some females show a strong preference for laying in the nests of a single species (McGeen and McGeen 1968) whereas others may parasitize the nests of several species. Among the birds most frequently victimized are vireos, tanagers, *Hylocichla* thrushes, and many warblers and fringillids.

Of the 29 host species recorded in the Carolinas, the one most frequently reported is the Rufous-sided Towhee (25%). This probably is a disproportionately large percentage because the towhee nests in residential neighborhoods and is more likely than most other host species to bring the fledgling cowbird to a bird feeder. Following the towhee are the Red-eyed Vireo (15%), Solitary Vireo (9%), Wood Thrush (8%), Dark-eyed Junco (6%), and Chestnut-sided Warbler (5%). No other species has been reported more than three times: Carolina Chickadee, Blue-gray Gnatcatcher (3), White-eyed Vireo, Yellow-throated Vireo, Black-and-white Warbler (2), Swainson's Warbler, Worm-eating Warbler, Northern Parula, Yellow-throated Warbler (2), Pine Warbler (2), Prairie Warbler, Ovenbird, Kentucky Warbler, Common Yellowthroat, Yellow-breasted Chat, American Redstart (2), Cardinal (2), Blue Grosbeak (2), Indigo Bunting, Painted Bunting, House Finch, Chipping Sparrow (2), and Field Sparrow. The six most frequently reported hosts account for 68% of the Carolina records; the remaining 23 species account for only 32%.

Most of the hosts are widespread and multi-brooded in the Carolinas. The House Finch, however, is a newcomer to the region and not yet known to breed in large numbers. It apparently nested in Winston-Salem for the first time in 1974 (Chat 38:98). By 1978 the species was nesting at several locations, and cowbird parasitism was noted in the small colony at Salem Cemetery (Chat 42:74-75).

Although conclusive data are not available for the Carolinas, the very small number of reports of more than one cowbird egg per nest (2) or of host pairs feeding more than one fledgling (5) suggest that only a small proportion of the parasitized nests contain more than one cowbird egg. However, such a small percentage of our data comes from examination of active nests that we could very easily be misled by the sample. There may be a high failure rate in nests containing two or more alien eggs.

In general, the large and medium-sized hosts (e.g. towhees and vireos) are more successful than the small ones when it comes to fledging young cowbirds. Nonetheless, Tom Haggerty (pers. comm.) reports a Chestnut-sided Warbler feeding three young cowbirds in Watauga County on 10 July 1979. Fortunately, cowbirds tend to victimize common, multi-brooded species whose open nests are easy to find. This habit apparently insures an abundance of suitable foster parents in future breeding seasons. The only time the cowbird becomes a very serious problem for a host species is when a small total population happens to be concentrated in a small geographic region, as is the case with the Kirtland's Warbler. This rare and endangered species is now protected by systematic removal of adult cowbirds and cowbird eggs. Most host species can take the inconvenience of rearing cowbirds in stride. One study indicates that the difference in nesting success between parasitized and nonparasitized populations may be as little as 3% (Pettingill 1970, p. 378). Nevertheless, Carter (pers. comm.) believes cowbird parasitism had an adverse effect on Solitary Vireos breeding in the Sandhills, where that species is at or near the eastern edge of its range in the Carolinas.

Table 2 shows the 12-year mean for cowbirds found on certain North Carolina Breeding Bird Survey Routes compared to the 12-year means for Rufous-sided Towhees and Red-eyed Vireos. At almost all localities the towhees and vireos are present in much greater numbers than are the cowbirds, indicating an abundance of suitable hosts. Only in northeastern North Carolina (Grandy) does the mean number of cowbirds exceed the combined means for the two most commonly reported host species statewide. Merrill Lynch (pers. comm.) suggests that where the Rufous-sided Towhee and Red-eyed Vireo are relatively uncommon, the Brown-headed Cowbird relies on one or more locally common hosts not frequently parasitized elsewhere in the state. This is a good hypothesis because we can easily see that cowbirds parasitizing Dark-eyed Juncos and Chestnut-sided Warblers in the mountains are showing preference for locally common species that do not breed in the piedmont and coastal plain.

Mengel (1965) lists 23 cowbird hosts for Kentucky. More than 20% of the nests examined had been parasitized in six species: Summer Tanager (41.2% of 17 nests), Red-eyed Vireo (36.3% of 11), Indigo Bunting (32.5% of 40), Wood Thrush (28.2% of 39), White-eyed Vireo (25.0% of 8), and Field Sparrow (22.4% of 49). Mengel found the Red-eyed Vireo to be the most successful host in terms of the number of young cowbirds known to have been fledged, followed by the Indigo Bunting, Summer Tanager, Wood Thrush, Cardinal, and Field Sparrow.

Southern and Southern (1980) found that some species remain locally common in spite of having been heavily parasitized for almost 70 years. Their recent study of nesting data from the University of Michigan Biological Station (UMBS), a largely forested preserve situated in Cheboygan and Emmet Counties in the northern portion of the Lower Peninsula, provides data on cowbird parasitism for a single region for a period of 68 years (1911-1978). The Southerns selected 2605 adequately detailed nest records from UMBS files. These represented 57 open-nesting passerines considered to be potential cowbird hosts. No nest parasites were recorded for 26 of these species, but the remaining 31 were parasitized at least once between 1911 and 1978. Of those species with a sample size larger than 10 nests, 13 had more than 20% of the recorded nests parasitized. The Red-eyed Vireo, with 69.3% of 257 nests parasitized, was the most frequent host at UMBS. It was followed by the Scarlet Tanager (63.64% of 11 nests parasitized), Chestnut-sided Warbler (52.94% of 17), Veery (51.52% of 33), Indigo Bunting (43.24% of 37), Purple Finch (42.11% of 19), Yellow-rumped Warbler (36.84% of 19), American Redstart (35.71% of 42), Ovenbird (29.55% of 44), Yellow Warbler (28.57% of 21), Chipping Sparrow (24.54% of 216), Rufous-sided Towhee (24.14% of 29), and Hermit Thrush (21.67% of 60).

Comparison of the Carolina, Kentucky (Mengel 1965), and UMBS (Southern and Southern 1980) data with each other and with results of other studies reveals some marked variations that appear to be related to (1) local habitat or (2) regional species diversity and relative abundance. In general, the more specialized and uniform the habitat, the lower the species diversity and thus the more heavily parasitized the limited number of suitable hosts within the area.

For example, a study of cowbird parasitism in northeastern Kansas (Elliott 1977) indicates that Grasshopper Sparrows, Dickcissels, and Eastern Meadowlarks nesting on the ground in this prairie region experienced a combined incidence of 70% parasitism with a mean of 2.7 cowbird eggs per parasitized clutch. Only 26% of the parasitized nests had but one cowbird egg. This contrasts sharply with data from other regions showing that approximately 60% of the parasitized nests have only one cowbird egg. Both Grasshopper Sparrows and Eastern Meadowlarks are on the list of birds for which no parasitized nests were reported at UMBS. Neither of these species has been recorded as a host in the Carolinas or Kentucky. (Dickcissels, of course, are irrelevant to the present study because of their rarity as breeding birds in the eastern United States.)

During a study of cowbird parasitism in an abandoned pasture and adjacent wet thicket at Otter Lake near Pontiac, Michigan, the McGeens (1968) found the Yellow Warbler to be the preferred host with some female cowbirds apparently laying exclusively in the nests of this species. The Yellow Warbler was a fairly common host at the largely forested UMBS, but we have no record of it as a host in Kentucky or the Carolinas.

Although Klass (1975) found cowbirds had parasitized 24.3% of 391 Eastern Phoebe nests he studied in Kanasas, this host was not reported at UMBS (97 nests examined) or in the Carolinas. In Kentucky, Mengel (1965) examined 32 nests and found only three (9.4%) that contained a single cowbird egg or nestling. Data from Connecticut and Michigan (Rothstein 1975) indicate 20.6% of 136 phoebe nests were parasitized by cowbirds.

There is no record of a parasitized Red-winged Blackbird nest from the UMBS (44 nests examined), Kentucky, or the Carolinas, but Hergenrader (1962) reported 54.2% of 59 nests examined in Nebraska contained one to three cowbird eggs.

Considering the Song Sparrow's reputation as a common host for cowbirds, the rates at UMBS (4 of 61 nests parasitized, 6.56%), in Kentucky (2 of 25 nests, 8%), and in the Carolinas (only one report in the 101 documented) are surprisingly low.

Mengel (1965) reported the Summer Tanager as the species most frequently parasitized in Kentucky (14 cowbird eggs or young in 7 of 17 nests examined), and the Southerns (1980) found 7 of 11 Scarlet Tanager nests parasitized at UMBS. However, neither species has been reported as a host in the Carolinas.

The most frequently reported host in the Carolinas is the Rufous-sided Towhee (25% of the documented eggs or young). At UMBS 7 of 29 nests (24.14%) were parasitized, indicating that the towhee is an important host in that part of Michigan, though far from the most frequent one. In Kentucky only 2 of 20 towhee nests (10%) contained cowbird eggs or young. Thus the towhee ranks twelfth at UMBS and sixteenth in Kentucky according to the percentage of parasitized nests in samples of 10 or more nests examined. The Carolina sample may be biased toward Rufous-sided Towhees because they bring young to feeders, and our data based mostly on fledglings are not comparable to the nest records from Kentucky and Michigan; nevertheless, the towhee appears to be a far more frequent host in the Carolinas than in Kentucky and Michigan.

While acknowledging the reality of sample bias, we believe that most, if not all, of the regional variations in the rates of cowbird parasitism noted above reflect real differences in host selection. The Southerns suggest, and the present authors concur, that host species diversity and relative abundance contribute to regional differences in host selection. It seems apparent, though, that host selection is governed by something more subtle than mathematical probability when several species that are common and successful hosts elsewhere have not yet been recorded as hosts in the Carolinas even though they are common and widely distributed breeding birds in this region.

Egg-laying behavior.—Pettingill (1970, p. 361) summarized the egg-laying behavior of the female Brown-headed Cowbird. Having noticed the nest under construction, she usually does not enter it until the prospective foster mother has laid two or more eggs but still has not begun incubating them. About a half hour before sunrise is the normal time for the female cowbird to enter the unoccupied nest and quickly deposit a single egg. No egg of the host species is destroyed at this time. Egg removal takes place the day before laying, later in the day of laying, or the day after laying. The female then pierces the egg with her bill, carries it from the nest, and eats it. Her interest in the nest continues, and she may remove additional eggs or, rarely, even the young of the host if she is allowed to approach the nest.

Normally the female cowbird deposits one egg a day for several consecutive days. In a given season 10 to 12 eggs may be laid in several "clutches" of 1 to 6 eggs each, with intervals varying from several days to a few weeks (Pettingill 1970, p. 361). However, the figures cited by Pettingill may be on the conservative side. The McGeens (1968) noted that the laying cycle varied from year to year with the host cycles. Their egg data from the Otter Lake region of Michigan suggest single female cowbird cycles of 18, 19, and 25 eggs in 4 to 7 clutches over periods of 40, 41, and 70 days.

Nests containing more than one cowbird egg may have been parasitized by more than one female, and Bent (1958, p. 438) reports that as many as eight cowbird eggs have been found in a single towhee's nest. Lowther (1979) indicates that the relatively large size of cowbird eggs seems to protect them from removal by female cowbirds that subsequently lay in the same nest.

Rejector species.—Birds have three primary defenses against brood parasitism: nest desertion, puncture or removal of the alien egg, the construction of a new nest on top of the old one. Blue Jays, Eastern Kingbirds, Cedar Waxwings, Gray Catbirds, Brown Thrashers, and American Robins are among those that puncture and eject cowbird eggs. The Yellow Warbler is well known for building many-layered nests to avoid incubating cowbird eggs (Pasquier 1977, p. 187). On 6 June 1971 Jay Carter (pers. comm.) found a Solitary Vireo nest containing one vireo egg and three cowbird eggs. After the nest was abandoned, he examined it and found a fourth cowbird egg that apparently had been roofed over by the nest builder. Sometimes unwilling hosts may bury the cowbird egg in the nest lining (Sprunt and Chamberlain 1970, p. 506).

Annual cycle.—In her study of the birds of Franklin County, N.C., Potter found that the large flocks of cowbirds depart or disperse in February. As early as 3 March she found cowbirds "on territory" at Zane's Mountain, a particularly attractive nesting place for good host species. Cowbirds were singing and displaying at three sites on 15 March, and on 29 March single birds and small flocks were at six places. On 15 April cowbirds were present at every creek and river bottom, and a few were at the cattle farms, too. Cowbirds appeared to continue feeding at the cattle farms even though they were searching woodland habitats for nests to parasitize. They were seen regularly along the watercourses from mid-April through June, but their numbers declined as the nesting season progressed. Meanwhile, the numbers found at the cattle farms increased until August when flocks of 20 or more immatures or 50 to 150 adults and immatures could be found in feed lots. Cowbirds were generally scarce in September and early October, giving the impression that most of the local breeding poipulation had moved south prior to the arrival of fall migrants from the north. However, it is very likely that some individuals are permanent residents in the Carolinas.

Nesting season.—Of the 101 known eggs or young cowbirds found in the Carolinas, we can calculate the month of laying for 53. These data indicate that the peak of laying occurs in June (43%). Approximately 34% of the eggs appear to have been laid in May with three of these possibly laid in very late April. The remaining 23% were laid in July, with one possibly laid in very early August. The earliest egg date we have seen for the Carolinas is 5 May at Charleston, S.C. (Chat 29:115); the earliest date for a young cowbird in the nest is 10 May in Moore County, N.C. (Chat 32:104); and the earliest date for a fledgling is 27 May (several sites). The latest date we have for a fledgling still dependent on the foster parent is 27 August (Whitehurst). The early May to late July period for egg laying is consistent with dates listed in Bent (1958, p. 450). As the McGeens (1968) point out, pooling egg dates from several seasons gives the impression of a longer laying period than is normal for a single season because varying weather conditions sometimes make onset of laying for hosts earlier or later than normal.

Incubation period.—According to Bent (1958, p. 439), the incubation period varies from 11 to 14 days with 11 to 12 being the usual number. The young cowbird normally hatches at least a day ahead of the young of the host species.

Nestling period.—Unlike some other brood parasites, young Brown-headed Cowbirds are not known to make a deliberate (or instinctive) effort to injure or oust the eggs or young of the foster parents. Although nestlings of the host species, particularly the larger ones, often are raised successfully along with the cowbird, smaller nestmates sometimes are undernourished or crowded out.

From a blind Tom Haggerty (pers. comm.) observed the care of a young cowbird in Watauga County, N.C., on 14 and 17 July 1979. At 1550 on 14 July, the female Indigo Bunting fed the young cowbird and took away the fecal sac in her mouth. The cowbird (eyes open, feathers emerging from sheaths) was larger and better developed than the single downy Indigo Bunting nestling, which still had its eyes closed. The inside of the cowbird's mouth was red; the bunting's mouth lining was yellow. The adult Indigo Bunting did not seem to distinguish between the two. The young cowbird kept its head and bill up, whereas the young bunting let its head drop. The cowbird was quicker to open its mouth for food, but it did not point its bill toward the approaching adult. Items fed to the cowbird were a butterfly and several grasshoppers.

At 0900 and 0905 on 17 July, Haggerty saw a female Chestnut-sided Warbler feed caterpillars to the cowbird nestling in the Indigo Bunting nest. At 0910 the female bunting came to the nest and seemed to look for fecal matter. The cowbird appeared to be alone in the nest. The warbler fed the cowbird eight times between 0922 and 1004. At 1009 the female Indigo Bunting returned to the nest, fed the cowbird, and settled on the nest. She left at 1013 and spent about 5 minutes chasing the Chestnut-sided Warbler from the nest. Meanwhile, a male Common Yellowthroat investigated the nest but did not bring food. At 1020 and 1030 the Chestnut-sided Warbler continued to feed the cowbird. Haggerty departed at 1031. Because the male Indigo was singing frequently and the female spent most of the period of observation on 17 July climbing around a Blackberry bush about 100 feet from the nest, Haggerty believes that she was in the process of constructing another nest.

Interspecific relationships such as a helper at the nest are always interesting, but few bird students ever match Haggerty's record of seeing four species at one nest, two of them feeding a nestling of a third species.

Fledgling period.—The rate of growth for the cowbird nestling depends on the suitability of the food furnished by the foster parents and the quantity provided (Bent 1958, p. 440-441). A lone cowbird grows faster than one that must compete with other nestlings. Thus, the age at which cowbirds leave the nest is subject to considerable variation; about 10 days may be a good average. The foster parent may continue to feed the fledgling out of the nest for as long as 14 days. Potter has noted that fledgling cowbirds follow ground feeders such as Wood Thrushes and Rufous-sided Towhees about on the ground, whereas fledglings being fed by arboreal species such as Red-eyed Vireos and Blue-gray Gnatcatchers remain on elevated perches in trees or shrubs or atop tall fences.

Relatively little has been published on the care of young cowbirds after they leave the nest. On 30 June 1979, Potter heard a young cowbird calling from a perch in the canopy of a Sourwood (*Oxydendrum arboreum*). Tended by a Red-eyed Vireo, the apparently newly fledged bird remained in approximately the same place for more than 24 hours. The young cowbird is assumed to have hatched in a nest about 60 feet away where another Red-eyed Vireo was tending a single nestling of its own species. The afternoon of 1 July, Potter saw the vireo feed the cowbird several times. After the second feeding, the foster parent remained nearby, but it did not appear to be foraging even though the chick continued to beg insistently. Suddenly the vireo swooped past the cowbird's posterior and flew away with a white mass in its beak. The mass appeared to be fecal matter. Examination of the ground under the perch revealed no droppings even though the fledgling is believed to have remained in the same tree for the better part of 2 days. Later in the day the young cowbird began moving to different trees. By 6 July, presumably the sixth day after fledging, the cowbird was still being cared for by the vireo in the same part of the yard. Through 14 July Potter heard calls that seemed to be those of a young cowbird and saw vireos in the vicinity of the source of the sound, but the height of the trees and the density of the foliage made it impossible to determine whether the vireo was still feeding the cowbird. All sites were within 200 feet of the vireo nest.

The young cowbird does not become imprinted upon the foster parents (Pettingill 1970, p. 394). Soon after dependency it flocks with others of its own kind. How the fledgling makes the transition from associating with the host species to flocking with other cowbirds is not clearly understood. Apparently the adult female keeps an eye on the parasitized nest and watches over the fledgling. Bent (1958, p. 441-442) cites three examples of adult females feeding young, apparently but not certainly their own. Whitehurst (1977) describes what appears to be the female's manner of attracting the chick away from the foster parents. Although she has not witnessed a repetition of an adult female's calling to a fully fledged young cowbird that later flew away with her, Whitehurst has seen other adult cowbirds in her yard on numerous occasions when fledglings were still dependent on the foster parents. On 10 August 1976, Whitehurst saw a female cowbird and two immatures, previously fed by two towhees, sitting together in a tree. There seems to be no reason to doubt that female cowbirds play an active role in assembling immatures into flocks.

DISCUSSION

Between 1933 and the mid-1960s, the Brown-headed Cowbird became known as a brood parasite throughout the Carolinas. The earliest known breeding records came from the mountains, western piedmont, and northern coastal region. Later the species invaded the eastern piedmont, inner coastal plain, and southern coastal region. The population levels appear to have stabilized during the mid-1970s in many of the western counties, but an upward trend is still evident in the more recently invaded areas. Throughout the Carolinas, the cowbird population appears to be relatively sparse compared to the number of potential hosts, and reports indicating two or more cowbird eggs in one nest are uncommon. Although a continued increase in the cowbird breeding population seems inevitable, the species does not appear likely to undergo the dramatic population explosion we have seen in the range expansion of introduced species such as the Starling and House Sparrow. Natural controls seem to be keeping the cowbird population within reasonable limits.

What effect has the Brown-headed Cowbird had on the populations of host species during nearly a half century of brood parasitism in the Carolinas? Several species—notably Bewick's Wren, Bachman's Sparrow, and Yellow Warbler—have declined, or at least contracted their range, during the past 50 years; however, there is no proof that cowbird parasitism is responsible for these changes. Indeed, the cowbird's most commonly reported host in the Carolinas is the Rufous-sided Towhee, which was not known to breed in Wake County in 1930 (Hader 1969). It has become a common nesting bird in the Raleigh area and remains so in spite of raising more than its share of young cowbirds. This absence of significant harmful effects on the host species (except one already scarce or endangered for other reasons) is consistent with the experience of other observers (Pettingill 1970, Southern and Southern 1980). The Brown-headed Cowbird is a remarkably adaptive species that seems to balance its own reproductive demands against the need to preserve the abundance of birds that make the most successful foster parents for young cowbirds.

Host selection and egg-laying behavior have been well studied in the Brown-headed Cowbird, but regional differences in the rates of parasitism for the nests of some common hosts raise interesting questions about host preferences. Much remains to be learned about the care of fledglings, especially the role of the adult female cowbird in watching over her offspring and in attracting them away from the foster parents. Careful observations may reveal that adult females and the young of the year have a far more complex relationship than is presently known or even suspected.

ACKNOWLEDGMENTS

J.H. Carter III, Elizabeth Clarkson, Gaston Gage, Bryan Glover, Tom Haggerty, J. Merrill Lynch, and Pamela M. Spencer provided unpublished records of cowbird parasitism and behavior. W.E. Southern arranged for us to receive a copy of *Jack-Pine Warbler* containing an important paper on cowbird parasitism in Michigan. Harry E. LeGrand Jr. and David S. Lee read a previous version of the paper and offered valuable suggestions.

LITERATURE CITED

Bent, A.C. 1958. Life Histories of North American Blackbirds, Orioles, Tanagers, and Allies. U.S. Natl. Mus. Bull. 211.

Carter, J.H., III. 1971. Birds of the central Sandhills of North Carolina. Chat 35: 91-105.

Elliott, P.F. 1977. Adaptive significance of cowbird egg distribution. Auk 94:590-593.

Friedmann, H. 1929. The Cowbirds: A Study in the Biology of Social Parasitism. C.C. Thomas, Springfield, Ill.

Friedmann, H. 1963. Host Relations of the Parasitic Cowbirds. U.S. Natl. Mus. Bull. 233.

Friedmann, H. 1971. Further information on the host relations of the parasitic cowbirds. Auk 88:239-255.

Hader, R.J. 1969. Species list of birds of Wake County, North Carolina. Chat 35:53-71.

Hergenrader, G.L. 1962. The incidence of nest parasitism by the Brown-headed Cowbird (*Molothrus ater*) on roadside nesting birds in Nebraska. Auk 79:85-88.

Klass, E.E. 1975. Cowbird parasitism and nesting success in the Eastern Phoebe. Univ. Kansas Mus. Nat. Hist. Occ. Pap. 41:1-18.

Lowther, P.E. 1979. Nest selection by Brown-headed Cowbirds. Wilson Bull. 91:118-122.

McGeen, D.S., and J.J. McGeen. 1968. The cowbirds of Otter Lake. Wilson Bull. 80:84-93.

Mengel, R.M. 1965. The Birds of Kentucky. Ornithological Monographs No. 3. American Ornithologists' Union.

Pasquier, R.F. 1977. Watching Birds: An Introduction to Ornithology. Houghton Mifflin, Boston.

Pearson, T.G., C.S. Brimley, and H.H. Brimley. 1959. Birds of North Carolina. Rev. ed. N.C. Dept. Agri., Raleigh.

Pettingill, O.S., Jr. 1970. Ornithology in Laboratory and Field. Fourth ed. Burgess Publishing Co., Minneapolis, Minn.

Rothstein, S.I. 1975. Evolutionary rates and host defenses against avian brood parasitism. Am. Nat. 109:161-176.

Southern, W.E., and L.K. Southern. 1980. A summary of the incidence of cowbird parasitism in northern Michigan from 1911-1978. Jack-Pine Warbler 58:77-84.

Sprunt, A., Jr., and E.B. Chamberlain. 1970. South Carolina Bird Life. Rev. ed. Univ. S.C. Press, Columbia.

Whitehurst, G.T. 1977. Brown-headed Cowbird behavior. Chat 41:71.

Route 3, Box 114AA, Zebulon, N.C. 27597, and 1505 Brooks Avenue, Raleigh, N.C. 27607, 25 September 1980.

CBC Roundtable

... with Louis C. Fink

Can A Blue Jay Really Produce Music?

Anyone acquainted with the shrills, squeaks, and hawk imitations of the Blue Jay is likely to scoff at the notion that a jaybird, or at least one individual, sings. The bird in question—I suspect that I've heard the same one three or four times—likes to crouch on my TV antenna and warble forth. The song is a sort of subdued prattle, not at all unpleasant, with, seemingly, no beginning or end. The jaybird's own special notes are frequently interspersed with caws like a crow and the "wicker" notes of the Common Flicker. Naturally I don't know the sex of the bird, but should like to suggest that it is a sort of mezzo-soprano for whatever that's worth.

The song probably does not relate to territorial advertisement inasmuch as Blue Jays do not nest in my yard nor any closer than a thicket two blocks away. Perhaps pure *joie de vivre* is as good an explanation as any. Have any of you bird watchers out there heard the song of Bre'r Jaybird?—JOSHUA A. LEE, 5104 Newcastle Road, Raleigh, N.C. 27606.

This reporter hopes for some reaction: Bird behavior is as important and as intersting as bird identification.

George Gladden in *Birds of America* (Garden City Publishing Co., Inc., 1936) writes, " 'That a Blue Jay? Nonsense!' many people exclaim, when told that a very melodius, bell-like note coming from a thicket is one of the calls of a bird whose sole vocal accomplishment, as far as they know, is his harsh cry of *Thief, thief.* But he frequently sounds this note and many others that are really musical...."

Richard A. Pough in *Audubon Bird Guide Small Land Birds* (Doubleday and Co., Inc., 1946) speaks of "sort of soft warbles and twitters."

Song and Garden Birds of North America (National Geographic Society, 1964) mentions a "bell-like *tull-ull* call, most often in autumn, when other birds are quiet" and refers to the "barely audible but exquisite medley of sweet, lisping notes...."

I plan to listen more attentively.—LCF

Attention, Program Chairmen

Excellent program materials, guest speakers, movies, slide shows, and film strips are available from the various state and federal agencies that are responsible for conservation education. Although some of the motion pictures carry high rental fees, many aids are available free of charge or for a small fee to cover postage.

A two-part slide show featuring the nesting and feeding habits of marsh and shore birds of the Southeast has been assembled by Mary Kay Clark, Audio-Visual Coordinator for the North Carolina State Museum. Intended for an audience of high school age or older, the 100-slide program titled "Feeding and Reproductive Niches of Marsh and Shorebirds" has an accompanying printed text (with glossary), and a cassette recording of the script is planned. This program, as well as others currently being produced for the North Carolina Biological Survey, is free to those who can pick up the slides and return them in person. Anyone wishing to order the show by mail, however, is requested to send a check for $1.50 payable to the Museum Extension Fund, to cover postage and handling. To reserve a slide show or obtain further information about educational materials available through the museum, write Mary Kay Clark, North Carolina State Museum, P.O. Box 27647, Raleigh, N.C. 27611.

The Natioinal AudioVisual Center issues descriptive brochures on a regular, ongoing basis. A recent title is "National Park Service Film Collection." To obtain this publication or to be placed on the mailing list, write: National AudioVisual Center, National Archives and Records Service, General Services Administration, Reference Section BW, Washington, D.C. 20409.

Golden Eagle Hacking Project

David Cone, curator of education at the Schiele Museum of Natural History in Gastonia, N.C., is directing a project with the ultimate goal of establishing a pair of breeding Golden Eagles in the Shining Rock area of Pisgah National Forest. Assisted by Don Hammer, a TVA biologist who successfully reestablished Ospreys and Bald Eagles in Tennessee, Cone obtained two eaglets, a male and a female. These birds were placed in an artificial nest atop a cliff at Shining Rock and tended by volunteers, many of them members of the museum's Expedition Society. If they survive to fledging, the young Golden Eagles will be released in August 1981. According to Cone, this is the first attempted hacking of Golden Eagles in the United States. The project may have to be repeated several times because the chances are slim that both of the birds hacked in 1981 will reach maturity and return to breed at Shining Rock.

Wing Haven

Wing Haven, the Charlotte home, garden, and bird sanctuary of CBC members Edwin O. and Elizabeth Barnhill Clarkson, was described in a recent Associated Press article by Elissa McCrary. The Clarksons donated the 3.5-acre graden in the heart of North Carolina's largest city to the Wing Haven Foundation in 1975 for public use. A 15-minute film about the sanctuary will soon be shown to nature groups around the country. Filmed by a Charlotte company, the documentary will be narrated by Dick Cavett.

Work on the garden began in 1927 when Mrs. Clarkson came to Charlotte as a bride and moved into a white frame house surrounded by an almost treeless field of red clay. Over the years brick walkways, a pond, and fountains were constructed; shade trees grew; and more than 130 species of birds, including breeding Wood Ducks, came to the garden.

Mrs. Clarkson's ornithological publications include an annotated list of the birds of Charlotte and Mecklenburg County.—EFP

Inflation Strikes Again: Bird Prints $4

Because printing and mailing costs ran higher than anticipated, *Carolina Country* has been forced to raise the price for reprints of John Trott's male Cardinal to $4 each. This is the same photo that appears on the jacket of *Birds of the Carolinas* reproduced in a format suitable for framing. The address is Cardinal Photo, Carolina Country, P.O. Box 27306, Raleigh, N.C. 27611.

Backyard Birding

... with Gail T. Whitehurst

We have a riddle for you. When does looking ahead mean looking back? When you read this in the summer issue of *Chat*, winter birdwatching will soon begin. So, in looking forward to that best of all seasons for backyard birding, perhaps we might look back to winters past. See what others have discovered and perhaps you, too, can see the same—or even better sights.

The winter of 1980-1981 brought forth some reports of unusually colored birds. I read in the Raleigh newspaper of a yellow male Cardinal. A neighbor told me of an orange male House Finch, and later he showed up on my feeder. He was a pale orange where he should have been red! We had a bird the size and shape of a Purple Finch with the coloring of a House Finch. A hybrid?

There were birds that should not have been around at all. My brother who lives in Asheville, N.C., had a male Rose-breasted Grosbeak at his feeder on New Year's Day. John Fussell reported that a male Painted Bunting has wintered at a feeder in Morehead City for several years. They know it is the same bird because it has an injured wing.

The past winter was a good one for the many bright and colorful Northern finches. After an absence of a couple of years, everyone enjoyed seeing PIne Siskins again. These may be small birds, but they most certainly hold their own on a feeder, chasing away the Purple and House Finches, and even the much larger Evening Grosbeaks.

Highly visible in winter, birds do interesting things at feeders and birdbaths. Many a dreary and cold day can be "perked up" just watching them.

John Funderburg, Director of the North Carolina State Museum, told me of an observation he made following a heavy snowfall, a couple of winters ago. He had made a clearing in his back yard and scattered seed on the ground. The snow was wet and heavy, covering the tree branches. As it began to warm up a bit, large clods, or chunks, of snow would fall right in the midst of the clearing where the birds were feeding. He noticed that the birds continued to feed, never fearing the falling clumps of snow. In fact, they did not even seem to notice them. Some of these birds were immatures, and it must have been their first experience with snow. Now if he had chunked a rock or stick at them, they would have scattered immediately. How did they know the snow was harmless?

We never cease to be amazed that birds "know" what to fear and what is harmless. Even a tiny fledgling fears a cat. It will flee if a human or dog comes near. How about the immatures that seek cover when an accipiter flies over in winter even though they have never encountered one? Why are birds usually not afraid of squirrels, chipmunks, or rabbits? Is this an instinctive knowledge, or do they "learn" from other birds?

Those who get hooked on backyard birding in winter find their interest continuing into spring. Winter birds are mainly concerned with getting food and water and with grooming. Come spring, and a whole new set of activities begins. Thanks to two of our younger CBC members, we have some unusual items for early spring.

Melissa S. Sherer, Box 977, Cramerton, N.C. 28032, wrote us: "On April 2 a Downy Woodpecker flew from its regular perch on a suet bag to a hanging cactus plant. After carefully landing, she began to peck on the cactus. She was eating it! I wondered if this has ever happened before. It was so funny that I couldn't help laughing."

John Sneeden, 6305 Gadwall Court, Wilmington, N.C. 28403, sent this in:

"On May 12, 1981, I was observing parent Tufted Titmice nesting in my back yard when I noticed a truly unique ritual. Before entering to feed the young, the two birds perched on top of the nesting box I had erected. The male carried a long, green caterpillar in his bill, but the female had nothing. As I watched, the female gently took the grub from the male's mouth and uttered a few soft notes. The male then 'reached' out and pulled it back to his mouth. This procedure was repeated for 5 minutes until the female finally took the caterpillar and entered the box. Throughout the ritual both birds didn't seem angry, on the contrary ... both seemed to be experiencing ecstasy, and quivered with excitement. I never saw this again nor could I find it mentioned in Donald Stokes' book, *A Guide to Behavior in Common Birds*. I would like to hear if anyone has seen it in titmice or any other birds."

The more you watch, the more you see. And, the more you see, the more questions you will ask. This leads you to keep on watching, reading, asking other birders—and, we hope, sending your observations so that all of us can learn.

Another good thing about winter birds—they do not create any problems for the vegetable garden! We do have problems in spring and summer. Granted, birds destroy a goodly number of insect pests. But, they like to partake of the fruits of our hard labor. For instance, House Sparrows simply adore lettuce from the minute it comes up. They bit off huge chunks of it right before our eyes. Brown Thrashers tend to pull up the first beans that sprout—guess they think the little shoots are green worms! Thrashers, catbirds, and robins dearly love tomatoes or any other fruit one chooses to grow. So, what do we do? We put chicken wire or netting over the threatened goodies, and it is usually pretty effective. Occasionally a bird will get through an opening in the netting, and we have a dickens of a time getting it out. Naturally, a bird will panic when it realizes it is caught. When you approach, it begins to race about in a terrified frenzy. Somehow, we manage to make an opening large enough for the bird to see, herd it in the right direction, and let it escape with no harm done.

Recently, we spent considerable time and effort putting a net over our pear tree, which is full of fruit. We thought we had the net well tied at the base of the lowest limbs. A day or so later, I went outside in the evening. There, inside the net and trying frantically to get out, were two titmice. The closer I went to the tree, the more excited the birds became. I had to untie the net so the birds could get out. While I was working on this, one of the little fellows clung to the net above my head and tried to bite his way out. Before he could do so, however, I had made an opening that he could see. In a flash, both birds saw the hole and were out and gone. The opening through which they had entered the net was very small, next to the trunk of the tree. They must have crept up the trunk, searching for insects. I rather suppose these two birds will stay away from the pear tree. I re-tied the net, this time making sure there was absolutely no way a bird could get inside.

The following day, I noted an adult Brown Thrasher walking about under the net over the lettuce bed. A tiny fledgling was outside, looking in and whimpering. Now the adult bird has been around several years and is one of my so-called "pets." It is not afraid of me and seemed to realize that I meant no harm as I approached. It waited patiently as I lifted some rocks holding down the net, and then walked out as calmly as you please. The little one was frightened, though. I tossed the old bird a bit of food and the baby followed its parent to a safe spot where it was fed. I found where the thrasher had entered and secured the place so that neither it nor the wee one would make that mistake again.

General Field Notes

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Common Terns Foraging Over Land

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On various occasions on 5, 6, and 7 May 1981, we observed Common Terns (*Sterna hirundo*) foraging over sparsely vegetated road shoulders on Bodie and Pea Islands, Dare County, N.C. Individual birds and groups of two to five terns were seen hunting along the main road (NC 12) that runs the length of the islands. To the best of our knowledge there are no reported instances of this species feeding over non-aquatic habitats, although it is a well-known behavior in Forster's (*S. forsteri*), Gull-billed (*Gelochelidon nilotica*), and Black Terns (*Chlidonias niger*).

The birds flew parallel to the road, into the wind, at an altitude of about 3 to 4 m and swooped down on potential prey. The terns were observed snatching food from the ground with their bills, but the prey items must have been small because we could not see them. After catching food the birds returned to their original altitude, without landing, and continued to patrol the road shoulder. Based on the number of feeding swoops, the prey items must have been quite abundant, and we surmize that they were newly emerging Orthopterans. Wax Myrtle (*Myrica* sp.) an other woody shrubs lined the road shoulders, so the birds confined their hunting to a rather narrow zone.

Although this seems like aberrant feeding behavior for a plunge-diving, surface-feeding tern, Lee observed this same behavior once before on Assateague Island, Worcester County, Maryland, in May 1974. A single bird was feeding over the open inner dune area near the north end of the island. In all cases the nearby waters were not so rough as to prohibit the birds from feeding in their conventional manner. It is not known if the individuals observed were breeding residents or spring migrants. In North Carolina and Maryland, Common Tern migration continues at least until the last week in May and local nesting is under way by the second week of the month. This is publication 1981-9 of the North Carolina Biological Survey.

A Dark-phase Western Grebe from North Carolina

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On 28 February 1981, I observed a dark-phase Western Grebe (*Aechmorphorus occidentalis*) on Pamlico Sound near the Swan Quarter ferry landing in Hyde County, N.C. The bird was first seen about 0800 as it swam in the vicinity of a Double-crested

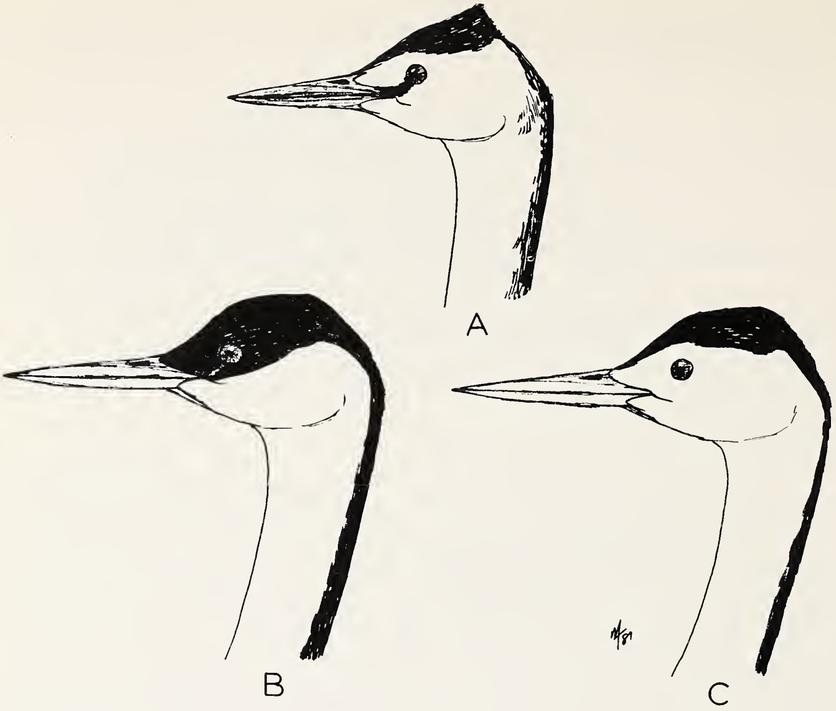

Fig. 1. (A) First-winter Great Crested Grebe, a species not recorded from North America. (B) Winter-plumaged dark-phase Western Grebe of the northwestern United States and adjacent Canada. (C) Winter-plumaged light-phase Western Grebe of the southwestern United States and Mexico. (Drawings by the author)

Cormorant (*Phalacrocorax auritus*). The two birds were of comparable size, but the grebe's neck was a little thinner and held straighter. The grebe's head and neck were immaculate white except for a coal-black crown, which extended below the eye (Fig. 1B), and a black stripe down the back of the neck. Most striking, however, was the very long and narrow straw-colored bill. Steve Graves and I observed the bird for nearly 30 minutes. Although the grebe was a considerable distance from us, nearly perfect lighting and an 80X Questar provided an opportunity for excellent study.

There are two distinct color morphs of the Western Grebe, which in fact were initially considered separate species but were treated as one species in the 1886 A.O.U. *Checklist* and all subsequent editions (see Storer 1965, Living Bird 4:59-63). Recently, compelling evidence indicates that these morphs behave as distinct species (Ratti, 1979, Auk 96:573-586). Although there are six previous records of Western Grebe for North Carolina (Chat 35:27-29; 41:36,38), the present one appears to be the first in which the color phase has been described.

Both forms of the Western Grebe have coal-black caps without distinct crests; both also have pale yellow bills (Storer 1965). The dark-phase birds of the northwestern

United States and adjacent Canada have black caps that extend below the eyes (Fig. 1B). Conversely, the light-phase birds of the southwestern United States and Mexico have white supercillia and generally more restricted black caps (Fig. 1C), Storer further comments that light birds have thinner stripes down the back of the neck, paler backs, and clearer yellow bills. If seen well, neither form of the Western Grebe should be confused with the Great Crested Grebe (*Podiceps cristatus*), which exhibits a slight crest and pronounced black line from eye to bill even in first-winter plumage. The Eurasian species has not been recorded in North America.

Rare Gulls at Cape Hatteras, N.C., Including First Carolina Record of Mew Gull

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On the afternoon of 31 December 1980, we discovered a Glaucous Gull (*Larus hyperboreus*), six Lesser Black-backed Gulls (*L. fuscus*), and a Mew Gull (*L. canus*) at the large tidal pond at Hatteras point, Dare County, N.C. There is only one previous Carolina record of the Lesser Black-backed Gull in which more than a single bird was seen. The Mew Gull observation constitutes the first record of this species for the Carolinas, and it appears to be the first for the eastern United States south of Baltimore.

[The name Mew Gull, which is generally used in North American publications, is preferred in this article even though the Atlantic population, *L. c. canus*, is referred to as the Common Gull in European field guides.—DSL]

Along the North Carolina coast, the period 25 to 31 December 1980 witnessed continuous sustained winds from the NE and NNE, never falling below 10 mph and reaching gale force on several occasions. The reputation of the Hatteras area as a magnet for storm-tossed birds prompted our visit. There were roughly 40,000 gulls in the area of the big pond, of which about 60% were Ring-billed (*L. delawarensis*), 35% Herring (*L. argentatus*), and 5% Great Black-backed (*L. marinus*). The sky was overcast with the temperature about 40° F. We were equipped with two spotting scopes and a Questar.

The Glaucous Gull was discovered in midafternoon by LeGrand. It was in first-year immature plumage, typical of most birds of this species seen in the Carolinas. This bird was studied leisurely as close as 50 m. Apparently the same bird had been seen there 5 days earlier by Lewis and Allen Bryan.

Soon after arriving at the pond about 1245, Lewis picked out the first Lesser Black-backed. Tove soon noticed two more within 30 m of the first. From the mantle color it was assumed that these birds were members of the British race *L. f. graellsii.* The mantles were dark ash-gray, much darker than in a Ring-billed Gull, yet not at all black, showing obvious contrast with the black wing tips. Lewis, who had observed adult Lesser Black-backeds in North Carolina on three previous occasions (Lewis 1980), remarked that these were the palest he had ever seen. Yet the several adults seen by LeGrand and Tove (LeGrand 1980, LeGrand and Tove 1980) in the Carolinas and Virginia had mantles much the same shade as these. All three of the birds showed extensive gray streaking around the eye and on the crown and nape. One of the birds was adult/fourth winter (bill yellow with red gonyal spot), another seemed to be in its third winter (bill yellow with black subterminal mark), and the third appeared to be in its second winter (some brown on the wing coverts, bill mostly dark). This third bird had grayish legs, whereas the others had yellow legs. All were a little smaller than a Herring Gull. Later in the afternoon, we found three more of these gulls elsewhere on the pond, all third winter or adult/fourth winter. Curiously, one of these latter birds, an adult/fourth winter, had an almost no streaking on its head. See Grant (1980) for information on identification of Lesser Black-backeds.

Soon after the sighting of the first three Lesser Black-backed Gulls, Lewis observed a bird about 70 m away, which we assumed at first to be an adult Lesser Black-backed. Lewis was the first to realize that the bird could not be a Lesser Black-backed because of its bill and size. We studied the bird for the next half hour as it stood and swam next to Ring-billed Gulls.

We observed a small, fully adult, winter-plumaged gull with a fairly dark mantle. The mantle color was midway between that of the Lesser Black-backeds and the nearby Ring-billeds, close to the shade of a Franklin's Gull (*L. pipixcan*). In overall size or bulk, the bird seemed identical to a Ring-billed Gull. The bird's head had the overall shape of a Ring-billed's. The leg color was greenish-yellow. The nape, crown, the lower nape area was so streaked as to give a collared effect. The folded wings showed four prominent white "mirrors" in the otherwise black wing tips, and were long enough to give the bird a tapered look. The eye was dark, but showed contrast between the black pupil and the surrounding iris. Lacking bright sunlight, we were unable to determine the iris color precisely; however, we believe that it was brownish or grayish. Gray smudgings around the front half of the eye gave the bird a "mean" look.

Perhaps the most striking feature of the gull was its bill. In size and shape it resembled a Ring-billed's, but with several significant differences. It was a little thinner and did not have a gonyal bulge. The tip of the upper mandible tapered gently, quite unlike the rounded tip of the Ring-billed. Most strikingly, the bill was uniformly greenish-yellow, with no red or black marks whatsoever.

The species *Larus canus* is common and widespread from western Europe across the whole of Siberia and into Alaska and the northwestern United States. The bird that is depicted in the various North American field guides is, naturally, the breeding race *L. c. brachyrhynchus* (Mew Gull). However, the birds that wander occasionally to the eastern United States are of the nominate western European race *L. c. canus* (Common Gull). The difference is significant, because birds of the two races differ noticeably. Common Gulls average only slightly smaller than Ring-billeds. Grant (1979) shows that there is much overlap in size. Mew Gulls average smaller and have dome- or dove-shaped heads and small, dainty bills. Common Gulls on the other hand, have somewhat larger bills and more flattened heads, more like those of Ring-billed Gulls. In fact, there is some evidence (Dan Gibson, pers. comm.) that these forms may not be conspecific. Our bird looked very much like those illustrated in Grant (1979), particularly like the individual shown in plate 50, page 151. Lewis and LeGrand, who had never before seen any *L. canus,* did not immediately recognize our bird because their subconscious preconception was of the Pacific Mew Gull rather than the Atlantic Common Gull. People who look for adult Common Gulls in the eastern United States are also cautioned not to look for "Ring-billeds without the ring." With their extensive head and neck streaking and dark mantle, adult Common Gulls resemble Lesser Black-backed Gulls more closely than they do Ring-billed Gulls.

Immature Common/Mew Gulls are virtually inseparable from immature Ring-billed Gulls, at least under most field conditions. For further information, refer to the article by Lauro and Spencer (1980). Soon after publication of their article, several reports of immature *L. canus* in the East were retracted.

LITERATURE CITED

Grant, P.J. 1979. Field identification of west Palearctic gulls, Part II. Brit. Birds 72:142-182.

Grant, P.J. 1980. Field identification of west Palearctic gulls, Part III. Brit. Birds 73:113-158.

Lauro, A.J., and B.J. Spencer. 1980. A method for separating juvenal and first-winter Ring-billed Gulls (*Larus delawarensis*) and Common Gulls (*Larus canus*). Am. Birds 34:111-117.

LeGrand, H.E., Jr. 1980. Lesser Black-backed and Glaucous Gulls at Huntington Beach State Park, S.C. Chat 44:78-79.

LeGrand, H.E., Jr., and M. Tove. 1980. Immature Lesser Black-backed Gull in Carteret County, N.C. Chat 44:82-83.

Lewis, B. 1980. Lesser Black-backed Gulls in the Carolinas. Chat 44:79-81.

Rat Snake Preys on Nestlings of Rough-winged Swallow and Common Grackle

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Though snake predation of various swallow species and other birds is not unknown (Bent 1942, U.S. Natl. Mus. Bull. 179:424-433; Condor 79:509; Living Bird 15:33-41; Murrelet 61:35-36; Wilson Bull. 91:135-137), few snake predation records have been noted from North Carolina.

At 1830 on 14 May 1980 in Bertie County, N.C., I examined a hole that was horizontally eliptical and was dug out of a sandy clay bank that had a slope of approximately 50 degrees. The hole was approximately 55 cm from the top of the bank and 2.5 m from the base. With the help of a pine root, I pulled myself up to the entrance, which had a vertical measurement of 5.5 cm and a horizontal measurement of 12.5 cm. The depth of the hole was 67 cm. A nest of pine needles was barely visible, but the hole was too dark for me to see eggs or young. Because adult Rough-winged Swallows (*Stelgidopteryx ruficollis*) were seen entering the hole, I assumed that the hole was being used for nesting.

At 1900 on 16 May, I returned to the nest hole and with the aid of a flashlight I found a Rat Snake (*Elaphe obsoletta*) curled up in it. After considerable effort, I extracted from the hole a snake approximately 120 cm in length. Its sides were evidently swollen. With firm downward massaging along its vertically held body, I forced the snake to regurgitate its stomach contents. The stomach remains were recognizable: five Rough-winged Swallow nestlings, one Rough-winged Swallow egg and two Common Grackle (*Quiscalus quiscula*) nestlings. The Rough-winged Swallow nestlings had a trace of down on the back and head and measured between 35 mm and 40 mm in length. The Rough-winged Swallow egg measured 17 x 11 mm and was cracked along its length and width. No visible signs of digestion were seen on the Rough-winged Swallow nestlings or egg. The Common Grackle nestlings measured approximately 108 mm in length and emerging feather sheaths could be seen along the feather tracts. The abdomen of one grackle nestling appeared to be slightly digested, for some of its internal organs were exposed. The eyes of all seven nestlings were still unopened.

Identification of the snake's stomach contents was confirmed by David Lee of the North Carolina State Museum. The snake was released near the point of capture.

BRIEFS FOR THE FILES

HARRY E. LeGRAND JR.

(Dates extend from April 1980 to March 1981; CBC = Christmas Bird Count)

COMMON LOON: An all-time high CBC for North America was the 2503 seen at Morehead City, N.C., on 21 December, fide John Fussell.

RED-NECKED GREBE: Two were seen in a creek near the Stono River on Johns Island, S.C., on 23 December by Pete Laurie. Single birds were observed near Masonboro Island, New Hanover County, N.C., on 6 December (Greg Massey); on the McClellanville, S.C., CBC on 21 December (Gardner Miller, Perry Nugent, et al.); and on the Roanoke Rapids, N.C., CBC on 29 December (Merrill Lynch).

HORNED GREBE: Mike Tove noted a peak count of 10,000+ on Pamlico Sound, N.C., during the winter. He had a similar peak of Common Loons, and a peak of 1000 Red-throated Loons on this body of water during the winter.

EARED GREBE: An extremely rare record for South Carolina was a bird seen on the ocean at Pawleys Island on 30 December by Steve Graves and Toby Lorenzen.

WHITE PELICAN: One was noted at Huntington Beach State Park, S.C., on 12 December by Pat Probst and Greg Massey, and presumably the same bird was seen on the Litchfield-Pawleys Island CBC on 30 December by Steve Graves and Toby Lorenzen. Apparently three birds were present during the winter in the Charleston, S.C., area, fide Dennis Forsythe: one in the Buck Hall section of Francis Marion National Forest, another at Shem Creek in Mount Pleasant since November, and a third at Colonial Lake in Charleston since January.

GREAT CORMORANT: Several immatures were seen at Huntington Beach State Park nearly all winter, with a record Carolina count of five on 22 February as noted by Perry Nugent et al. In North Carolina were single immatures at Oregon Inlet on 16 December (Steve Graves), at Pea Island 26 to 30 December (Bob Lewis et al.), at Cape Hatteras from 15 to 25 February (John Fussell, Mike Tove), and at Masonboro Inlet on 23 December (Bob Lewis).

GREEN HERON: One was seen by Alan Avakian near Pendleton, S.C., on 3 January.

BLACK-CROWNED NIGHT-HERON: A good count of 175 was made at the spoil area in South Carolina just north of Savannah, Ga., on 28 February by Jimmy Beatty et al.

GLOSSY IBIS: One was noteworthy at Lake Mattamuskeet, N.C., on the early date of 27 February by Steve Graves and Mike Tove.

WHISTLING SWAN: Outside of the usual winter range was one at Lake James in western North Carolina, as noted by Robert Ruiz on 8 December; and nine were seen near Cove City, N.C., on 7 February by R.J. Hader.

BRANT: Good North Carolina counts were 1000 in Hatteras Inlet on 9 January, as reported by Mike Tove and Steve Graves, and 200 near Cape Lookout on 16 February (Skip Prange).

WHITE-FRONTED GOOSE: Bud Pollock and Sparkie Betts noted 13 at Santee National Wildlife Refuge, S.C., on 7 December. Two were seen at Savannah National Wildlife Refuge, S.C., on 10 January by Anne and Vernon Waters and again on 17 January by Perry Nugent et al.

SNOW GOOSE: One adult and two immature Blue Geese were present at a farm pond near Morehead City, N.C., during most of February, as noted by John Fussell et al.

ROSS' GOOSE: An adult was studied at close range at Pea Island, N.C., from 31 December to 18 January. It was discovered by Bud Needham and was later seen by Harry LeGrand, Bob Lewis, Mike Tove, and many others.

PINTAIL: A flock of 25 was seen by Steve Graves at Beaverdam Reservoir in northern Wake County, N.C., on 20 February.

GREEN-WINGED (COMMON) TEAL: A male of this Eurasian race was carefully studied at Santee refuge, S.C., on 12 December by Anne and Vernon Waters. This is probably a first inland record of a Common Teal in the Carolinas.

EUROPEAN WIGEON: A male was seen by Charles Eastman on the McClellanville, S.C., CBC on 21 December.

NORTHERN SHOVELER: Rare inland in winter were four noted by P.J. Crutchfield at Fayetteville, N.C., on 23 December.

RING-NECKED DUCK: Good counts for the Burlington, N.C., area were 279 on Lake Cammack on 22 January and 275 there on 22 February (Allen Bryan).

GREATER SCAUP: At Lake Cammack, N.C., were four on 6 January and seven the following day, as reported by Allen Bryan. As many as three were observed by Harry LeGrand et al. near Clemson, S.C., from 3 to 8 January. One was rare for the Chapel Hill, N.C., area at Eastwood Lake on 15 February (Steve Graves). Also seen on Eastwood Lake during the winter by Graves et al. were two Redheads, three Canvasbacks, and a female Common Goldeneye, all of which are scarce in the Chapel Hill area.

OLDSQUAW: Perhaps a record Carolina count was the 5000 seen on Pamlico Sound, N.C., mainly in the Swanquarter area, on 28 February by Steve Graves and Mike Tove. One was notable at the Savannah River Plant, S.C., on 20 December, as seen by Anne Waters et al.

KING EIDER: Two females were observed by Steve Graves and Mike Tove at Oregon Inlet, N.C., on 11 January.

WHITE-WINGED SCOTER: Rare inland was an immature or female bird seen by C. Royce Hough and party at Salem Lake near Winston-Salem, N.C., on 18 to 20 January.

SURF SCOTER: Merrill Lynch noted an immature male on Roanoke Rapids Lake, N.C., on 29 December.

RUDDY DUCK: Bob Holmes reported that 20,000+ ducks, at least 95% Ruddies, were present on the lower Neuse River in Craven County, N.C., from 8 to 10 March. At least 3000 waterfowl (mainly Ruddy Ducks, American Coots, and Buffleheads) were seen by Jay Carter and Tim Stamps on Lake Surf, near Vass, N.C., on 15 February.

RED-BREASTED MERGANSER: An outstanding North Carolina total was 150,000+ observed by Mike Tove from the Cedar Island to Ocracoke ferry on 9 January. A female was noted by P.J. Crutchfield at Fayetteville on 15 January.

COMMON MERGANSER: Small numbers (nine or fewer) were seen during the winter on the following lakes in North Carolina: Lake Wheeler near Raleigh (Steve Graves), Lake Cammack (Allen Bryan), Lake Surf (Tom Howard), and Kerr Scott Reservoir near North Wilkesboro (John Fussell, Mike Tove). One seen on the tidal pond at Cape Hatteras point, N.C., by Bob Lewis on 26 December was rare for the Outer Banks.

BLACK VULTURE: Rare for the mountains were three seen by Robert Ruiz and Bill Duyck at Enka, N.C., on 18 December.

GOSHAWK: An exciting find was an adult observed in Biltmore Forest, near Asheville, N.C., on 1 January by John Young.

ROUGH-LEGGED HAWK: Single birds were noted at Jordan Reservoir in eastern Chatham County, N.C., from 8 to 20 February (Steve Graves, Mark Crotteau, et al.), in western Chatham County in mid-January (Pat and Jim Culbertson), and near Cape Island on the McClellanville CBC on 21 December (Gardner Miller, Perry Nugent).

GOLDEN EAGLE: An immature was noteworthy at the Goat Island section of Lake Marion, S.C., on 31 January, as seen by Carl Helms and the Clemson University ornithology class. Two adults were noted at Roan Mountain, N.C., on 6 February by Fran and Wayne Irvin.

BALD EAGLE: In addition to scattered reports from the South Carolina coast, where the species is regular, single eagles were detected inland at Beaverdam Reservoir on 4 and 5 December (Jim McConnell), near Camden, S.C., on 25 January (Harry LeGrand), at Santee refuge on 25 January (Charleston Natural History Society), at Jordan Reservoir on 8 February (Steve Graves, Mark Crotteau), and at Congaree Swamp, southeast of Columbia, S.C., on 21 February (Paul Hamel).

MARSH HAWK: An extraordinary CBC total was 98 harriers on the New Hope River count on 4 January, fide Barbara Roth. Nearly all of the birds were seen in the lakebed of Jordan Reservoir.

OSPREY: Rare for the winter season was an individual seen by R.J. Hader at Beaverdam Reservoir on 22 December.

PEREGRINE FALCON: There were no reports away from the tidewater zone during the winter, but an adult at Lake Mattamuskeet, N.C., on 27 February (Steve Graves, Mike Tove) was notable away from the immediate coast.

MERLIN: An overdue first record for the North Carolina Sandhills was one seen by Tom Howard on 24 February at Weymouth Woods park near Southern Pines. Others inland were noted at Raleigh on 7 and 18 January by Gail Whitehurst and near Fayetteville on 8 January and 23 February by M.E. Whitfield and P.J. Crutchfield.

RUFFED GROUSE: Several were seen by hunters during the winter approximately 5 miles NE of Yanceyville, N.C., fide James Coman.

YELLOW RAIL: A notable find was a rail flushed from a salt marsh at Oregon Inlet on 10 January by Mike Tove and Steve Graves.

WILSON'S PLOVER: One was rare at Bird Shoal on the Morehead City, N.C., CBC on 21 December, as seen by Mike Tove.

HUDSONIAN GODWIT: The first definitive winter record for NorthCarolina was an individual seen by Paul Sykes et al. at South Pond on Pea Island on 30 December. The dark underwing linings were clearly noted by the observers.

WHIMBREL: John Fussell saw one near Fort Fisher, New Hanover County, N.C., on 24 January.

GREATER YELLOWLEGS: Rare inland in winter was an individual near Fayetteville on 9 January (P.J. Crutchfield, Kevin Mason), and another was seen at a different site near that city on 28 January by Crutchfield. Good winter totals of 120 Greater Yellowlegs and 75 Lesser Yellowlegs were made at the Savannah spoil area on 28 February by Jimmy Beatty et al.

LONG-BILLED DOWITCHER: Most unusual inland were 15 at Swanquarter, N.C., as seen by Steve Graves and Mike Tove on 28 February. One was seen and heard at Huntington Beach State Park, S.C., on 21 February by Lex Glover et al.

DUNLIN: Two were late at Jordan Reservoir on 4 January, as noted by Norman

Budnitz.

GLAUCOUS GULL: Several immatures were seen this winter in coastal Carolina. At Cedar Island, N.C., one was noted on 9 January (Steve Graves, Mike Tove), with two there on 23 January (Tove, Allen Bryan), and one present on 14 February (John Fussell). One was at Cape Hatteras from 26 December to 23 January (Bob Lewis et al.), and another was seen near Hatteras, N.C., on 9 January (Graves, Tove). In South Carolina one was at Litchfield Beach on 29 December (Perry Nugent).

GREAT BLACK-BACKED GULL: Extremely rare for the piedmont was an immature seen on Salem Lake at Winston-Salem on 20 January. Ramona Snavely and others compared the gull with Herrings and Ring-billeds in the area.

LESSER BLACK-BACKED GULL: Record numbers were present at Cape Hatteras during the season, with six seen there on 31 December by Bob Lewis, Mike Tove, and Harry LeGrand; three on 23 January by Mike Tove and Allen Bryan; and one still there on 28 February (Steve Graves, Tove). Lewis and Bryan saw one at Pea Island on 26 December, and Skip Prang saw another at Cape Lookout, N.C., on 30 January and again on 16 February.

HERRING GULL: Locally rare in the piedmont were three on the New Hope River CBC on 4 January (fide Barbara Roth), and at least three wintered at Beaverdam Reservoir (fide R.J. Hader), with a peak of 10 there on 26 December (Harry LeGrand).

RING-BILLED GULL: Three seen by Bill Duyck and Robert Ruiz were rare at Lake Junaluska, N.C., on 18 December.

BONAPARTE'S GULL: Noteworthy CBC totals inland were 102 at Raleigh on 20 December (Harry LeGrand, Merrill Lynch, et al.), nine at Lake Surf on the Southern Pines count on 21 December (Tom Howard), and two at New Hope River on 4 January (Steve Graves, Dan Kaplan).

COMMON TERN: One was somewhat north of the usual winter range at Sunset Beach, N.C., on 2 January, as noted by P.J. Crutchfield and Kevin Mason.

SHORT-EARED OWL: A remarkable number of owls were present in the fields and marshes in the lakebed of Jordan Reservoir during the winter. Three were seen by Jim and Elizabeth Pullman on 7 December, and many birders saw 10 or more owls there in a single day, with the highest count being 21 on 8 February (Steve Graves, Mark Crotteau, Marc Eisdorfer). One was seen by John Paquet, Jimmy Beatty, and Lex Glover at Carolina Beach, N.C., on 24 January.

RUBY-THROATED (?) HUMMINGBIRD: Single females or immature males were observed at Tryon, N.C., on 13 December by Mr. and Mrs. Ralph Milner and on the McClellanville CBC on 21 December by Dennis Forsythe. Because a recent winter specimen of a female or immature hummingbird from Massachusetts was a Black-chinned (Am. Birds 34:254), and Florida recently had its fourth record of Black-chinned (Am. Birds 34:769), it cannot be assumed that non-rusty hummingbirds in winter in the Carolinas are Ruby-throated.

RUFOUS (?) HUMMINGBIRD: A female or immature was seen at Charleston on 24 January by Bowman Varn. The bird had rufous on the rump, tail, and sides. The possibility of "rusty" hummingbirds in our area being Allen's or Broad-tailed is remote, but (again) caution must be taken when dealing with hummingbirds that are not in adult male plumage.

RED-COCKADED WOODPECKER: Jay Carter and Tim Stamps noted three birds and 39 cavity trees in two colonies near Pembroke, N.C., on 3 February.

BARN SWALLOW: Very early "spring" migrants were observed by Vince Jackson et al. on 15 February at Savannah National Wildlife Refuge and by Merrill Lynch on

18 February near Waterlily, Currituck County, N.C.

SHORT-BILLED MARSH WREN: Noteworthy inland in winter were individuals on CBCs at Roanoke Rapids on 29 December (Harry LeGrand) and at New Hope River on 4 January (Jim and Elizabeth Pullman). The Pullmans saw another wren at a different location in Jordan Reservoir on 18 January, and P.J. Crutchfield found one near Fayetteville on 6 January.

FISH CROW: This species is now apparently wintering in the Lake Hartwell area of South Carolina, as one was seen and heard near Townville on 8 January and two were there on 28 February, as reported by Harry LeGrand.

BROWN-HEADED NUTHATCH: Rare for the mountains was an individual seen by Jean Gertz andparty on 24 January in the Bent Creek area of Buncombe County, N.C.

BLUE-GRAY GNATCATCHER: Jim Mulholland found a late bird near Raleigh on 30 November.

WHITE-EYED VIREO: Notable records were one on the Roanoke Rapids CBC on 29 December (Harry LeGrand) and another at Sunset Beach on 25 January (P.J. Crutchfield, Kevin Mason, Dennis Boeke).

BLACK-AND-WHITE WARBLER: Harry LeGrand, Julie Moore, and Merrill Lynch saw one on the Raleigh CBC on 20 December.

ORANGE-CROWNED WARBLER: Two birds were seen on the Raleigh CBC on 20 December by Ken Knapp and Wayne and Fran Irvin.

CAPE MAY WARBLER: A rare winter record was an individual noted by Lee DeNeef at Raleigh on 10 December.

PRAIRIE WARBLER: One was notable in a yard at Fayetteville on 23 February, as reported by P.J. Crutchfield and Mosely Chesnutt.

OVENBIRD: One of the few winter records for North Carolina was a bird studied carefully at the Buxton Woods nature trail at Cape Hatteras on 23 January by Mike Tove and Allen Bryan.

YELLOW-BREASTED CHAT: Single birds were observed by Jay Shuler at his feeder in McClellanville on 23 and 24 December and by P.J. Crutchfield at Fayetteville on 31 December and 8 January.

WILSON'S WARBLER: An exceptional count of three was made at Santee National Wildlife Refuge on 25 January by Perry Nugent, Steve Compton, et al. A trace of a black cap was seen on one of the birds.

ORCHARD ORIOLE: Alan Feduccia noted a female or immature male at his feeder at Chapel Hill for several days in mid-February.

BOAT-TAILED GRACKLE: The first convincing North Carolina record away from the lower coastal plain was a female carefully observed by P.J. Crutchfield in his yard in Fayetteville on 9 January. The bird was brown in color with an evident eye stripe, dark eye, tail approximately one-half the total length of the body, and size larger in length and bulk than Common Grackles (which were present for comparison).

BREWER'S BLACKBIRD: The only winter sighting was a male seen by Gail Whitehurst in her Raleigh yard on four occasions from 27 December to 12 February.

WESTERN TANAGER: One was seen at a feeder in Fayetteville on 15 February by P.J. Crutchfield, Kevin Mason, et al.

SUMMER TANAGER: Very rare in winter were females or immature males near Morehead City on 21 December (Alex Meadows, Kenny Baxter) and at a feeder in Fayetteville on 9 and 11 February (P.J. Crutchfield, Henry Rankin, et al.).

ROSE-BREASTED GROSBEAK: A male was observed at a feeder in Asheville on 3 January by Gilbert Tennent.

BLACK-HEADED GROSBEAK: Jay Shuler noted a female at his feeder in McClellanville from 16 to 21 January. He saw the buffy underparts and fine streaking along the sides of the breast.

BLUE GROSBEAK: One was rare for the season near Pendleton, S.C., where seen by Harry LeGrand on 15 February.

PAINTED BUNTING: One wintered at the feeder of Mrs. John Griffith in Morehead City. John Fussell observed the bunting on 18 March.

DICKCISSEL: Jack Stewart discovered two pairs at Columbia, S.C., in late April. A nest was later found, with five young, by Oleta Beard and Oscar LaBorde. Jimmy Beatty noted three immatures from this nesting on several dates during the summer.

WINTER FINCH FLIGHT: The winter of 1980-1981 saw a rather heavy influx of Evening Grosbeaks and Pine Siskins to all parts of the Carolinas, the first major invasion in three winters. Red-breasted Nuthatches were also present in fairly good numbers, but they were common in only a few areas.

HOUSE FINCH: Locally noteworthy were two males seen in Pinehurst, N.C., from 22 December to 1 January by Bob Rufa, and three seen at a feeder in Wilmington, N.C., by Greg Massey from 26 to 28 February. This species was seen this winter as far west as Asheville and as far east as Morehead City.

COMMON REDPOLL: On the Chapel Hill CBC on 3 January were one at Carol Hamilton's feeder (seen again on 11 January) and two at Cora and Ruth McLean's feeder. Wayne and Fran Irvin had one at their feeder in Raleigh on 4 January. It was present for several days and was observed by Steve Graves and Mike Tove on 5 January. The most unusual record was a group of six redpolls seen by Skip Prange on 6 January at Harkers Island, N.C.

RED CROSSBILL: This species was again essentially absent in the Carolinas during the winter, with the only sightings being of one at Raleigh in late November by Joshua Lee, three at Wilmington on 9 December by Greg Massey, several in mid-December in Brunswick County, N.C., by Ricky Davis, and one at Highlands, N.C., on 31 December by Jim McConnell.

GRASSHOPPER SPARROW: Notable in winter for North Carolina were one at Jordan Reservoir on 18 January (Barbara Roth) and another nearby at Mason Farm in Chapel Hill on 24 January (Steve Graves).

HENSLOW'S SPARROW: This rare and elusive sparrow again wintered in western Carteret County, N.C., in open pinewoods along Millis Road. At least one was seen on 22 December by Bob Lewis, Mike Tove, and Harry LeGrand, and two were there on 1 February (John Fussell et al.). At the abandoned golf course near Carolina Beach, Greg Massey et al. observed several on four dates from 20 December to 2 February.

LE CONTE'S SPARROW: Very rare for North Carolina was one studied carefully at the abandoned golf course near Carolina Beach on 25 January by Jimmy Beatty, Lex Glover, and John Paquet. Four were reported from South Carolina: a first for the Clemson area near Pendleton on 7 December (Sidney Gauthreaux, Harry LeGrand, et al.) and again on 3 January (Le Grand, Edmund Taylor); on the McClellanville CBC on 21 December (Perry Nugent); on the Litchfield-Pawleys Island CBC on 30 December (many observers); and at Mount Pleasant on 11 January (Charles Eastman).

VESPER SPARROW: One was seen at Fort Bragg, N.C., on 14 December, and two were noted at Fayetteville on 8 January, as reported by P.J. Crutchfield.

LARK SPARROW: Very rare for the season was a brightly-colored individual found on 21 December by Larry Crawford at Pine Knoll Shores, Carteret County, N.C. Mike Tove photographed the sparrow the next day.

BACHMAN'S SPARROW: Jay Carter flushed an *Aimophila* sparrow from suitable habitat in the western part of Fort Bragg on 2 January, and two were flushed in the area on 4 January. The birds were presumably Bachman's. At the Henslow's Sparrow site in Carteret County were one Bachman's on 1 February (Steve Graves, John Fussell, Mike Tove) and three singing there on 28 February (Fussell et al.).

DARK-EYED (OREGON) JUNCO: One of the few records of this race for North Carolina was a female seen at Umstead State Park, near Raleigh, on 14 December by Steve Graves and Mark Crotteau.

CLAY-COLORED SPARROW: North Carolina had three "first" winter records: one seen by Bob Holmes at Pea Island on 6 December, one seen by Greg Massey and Maurice Barnhill at the abandoned golf course near Carolina Beach on 24 December, and as many as three at Bodie Island from 30 December to 22 February. Allen Bryan discovered the first Bodie Island sparrow, and numerous birders saw them during the winter, with Wayne Irvin collecting two of the birds in February.

HARRIS' SPARROW: An exciting find was an individual seen at Alan Haney's feeder in Swannanoa, N.C., from 5 to 12 January.

LINCOLN'S SPARROW: Two parties noted this species on the Winston-Salem CBC on 3 January (Zack Bynum and Don White, Jim and Pat Culbertson). The only other winter report was of one seen on the Clemson CBC on 3 January by Harry LeGrand and Edmund Taylor.

LAPLAND LONGSPUR: Three were observed near Pendleton on 7 December by Harry LeGrand and Sidney Gauthreaux; four were noted at Cape Hatteras on 23 January by Allen Bryan and Mike Tove; and 13 were seen on the Roanoke Rapids CBC on 29 December, with three of the birds near Halifax (Merrill Lynch) and the remainder on Occoneechee Neck (Harry LeGrand, Mike Tove).

SNOW BUNTING: Perhaps the best flight into the Carolinas in a decade occurred during the winter, though the only records for South Carolina were eight seen by many observers on the Litchfield-Pawleys Island CBC on 30 December, and one seen near Charleston on 13 January by Harry and Jeanette Anderson. The most remarkable record was 14 tallied on the Roanoke Rapids CBC on 29 December, with four near Halifax and 10 on Occoneechee Neck (Merrill Lynch, Harry LeGrand, Mike Tove). At Occoneechee Neck, six buntings had been discovered the day before the count in a flock of several hundred Horned Larks by Lynch, Bob Lewis, and Allen Bryan, and two were still there on 31 January (Tove, Steve Graves.) Along the North Carolina coast, counts in double figures were 45 on Masonboro Island on 28 February (Greg Massey), 32 on Radio Island at Morehead City on 21 December (Bob Lewis) and 36 there on 10 February (John Fussell), 19 on the Bodie-Pea Island CBC on 30 December (fide Paul Sykes), 15 at Cape Hatteras on 31 December (Lewis, LeGrand, Tove), and 15 near Avon on 10 January (Graves, Tove).

Correction

Harry E. LeGrand Jr. has noted a minor discrepancy in the published dates for the first sighting of the Black-tailed Godwit at Bodie Island, N.C., in December 1979 during the Christmas bird count. Tove and Hughes (Chat 45:13-14) give 26 December; *American Birds* (34:458) gives the date of the Bodie-Pea Island Christmas Bird Count as 27 December. The latter date is correct.

Carolina Bird Club
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The Chat

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OUR COVER—Bill E. Duyck found and photographed the second Tree Swallow nest known for North Carolina. In Buncombe County the birds nested at or near the southern limit of breeding for the eastern United States (see page 98). John Henry Dick contributed the eagle and duck drawings used in this issue.

AUTUMN HAWK MIGRATIONS AT FORT JOHNSON, CHARLESTON, S.C.

PETE LAURIE, JOHN W. McCORD, and NAN C. JENKINS

The fall migration of raptors on the East Coast of North America is well documented from New England to Virginia (Heintzelman 1975). At several points such as Hawk Mountain, Pennsylvania, and Cape May, New Jersey, numerous observers have for years recorded detailed accounts of passing migrants. Migrating raptors generally follow either mountain ridges or coast lines, and peak flights generally are preceded by the passage of a cold front (Broun 1951).

South of Virginia only a few scattered observations have been recorded (Simpson 1954, Crossan and Stevenson 1956, Carter 1973, Lee and Lee 1978). Neither Wayne (1910) nor Sprunt and Chamberlain (1970) mention this phenomenon. Preliminary efforts to monitor hawk migrants along the South Carolina coast were undertaken by Laurie in the fall of 1979 at Fort Johnson on the southern edge of Charleston Harbor. During the fall of 1980, the study was continued on a broader and more refined basis.

METHODS AND MATERIALS

Fort Johnson is situated on the point of a short peninsula extending northeast from James Island, Charleston County, into Charleston Harbor (Fig. 1). The count site is 2.7 km inland from the Atlantic Ocean on the landward edge of a wide strip of *Spartina* saltmarsh. Observations were made from the top of a spoil dike approximately 3 m above the surrounding terrain. This site provided an unrestricted view of about 180° across the harbor and the surrounding marsh.

Hawk migrations were monitored at Fort Johnson from 3 September to 6 November 1980. Counts were made on an hourly basis by three observers equipped with 7X binoculars. Occasionally less than three observers were available during count periods. Most counts were conducted from 1100 to 1200 or from 1200 to 1300 EST. Wind direction and speed were approximated, and percent of cloud cover was estimated.

Data were recorded according to criteria developed in the newsletter of the Hawk Migration Association of North America (1978). All raptors were counted provided they demonstrated an obvious north-to-south movement. Occasionally Ospreys and more often Marsh Hawks were observed circling in a small area, showing no directed southerly movement. Although these birds may well have been migrants that temporarily paused to feed, they were considered to be local birds and were not counted. Ospreys breed along the South Carolina coast but are rare in winter, whereas Marsh Hawks are common during the winter but are not known to breed in the state (Potter et al. 1980).

RESULTS

A total of 1764 raptors representing 11 species were recorded during 71.6 hours of observation (Table 1). In 1979, 310 raptors were seen at the same count site from 23 September to 11 October during 18 hours of field work. An average of 24.6 hawks per observation hour was recorded in 1980. The highest hourly count was 306 raptors at midday 6 October. This corresponds to the highest hourly count of 60 raptors on the same date in 1979.

The Sharp-shinned Hawk was the predominant species noted during the 1980 count period, and it accounted for 47% of the total hawks recorded. American Kestrels,

TABLE 1. Number of hawks per month observed at Fort Johnson during 1980.

Species	*Sept.*	*Oct.*	*Nov.*	*Total*	*Percent of Total Hawks*
Turkey Vulture	5	174	0	179	10.1%
Unidentified Accipiter	4	0	0	4	0.2%
Sharp-shinned Hawk	56	763	12	831	47.1%
Cooper's Hawk	13	12	0	25	1.4%
Unidentified Buteo	6	9	2	17	1.0%
Red-tailed Hawk	5	7	0	12	0.7%
Red-shouldered Hawk	4	5	0	9	0.5%
Bald Eagle	1	5	1	7	0.4%
Marsh Hawk	67	82	8	157	8.9%
Osprey	119	74	1	194	11.0%
Unidentified Falcon	3	3	2	8	0.4%
Peregrine Falcon	5	7	0	12	0.7%
Merlin	3	3	0	6	0.3%
American Kestrel	138	157	5	300	17.0%
Unidentified Raptor	0	0	3	3	0.2%
Total	429	1301	34	1764	—

Ospreys, Turkey Vultures, and Marsh Hawks followed in decreasing order of abundance and accounted for an additional 47% of the count. The remaining 6% of the total count was composed of six species and four categories of unidentified raptors (Table 1).

Flight Behavior and Movements

Migrant raptors generally were first seen over the harbor approaching the count site from the northeast (Fig. 1). In many cases migrants passed almost directly overheard with the majority at an altitude between 50 m and the upper limit of unaided sight. Height and direction of flight varied somewhat with wind direction and speed. With light or variable wind, birds of all species moved in tight circles with distinct progress to the southwest. On stronger winds raptors generally exhibited directed flight with little wing movement. On a few occasions with strong westerly winds, raptors were seen flying just above the water. This low flight was also noted occasionally in 1979.

During times of concentrated flights, migrants often formed small, unorganized groups of 5 to 10 birds, not always of the same species. In between such groups, we saw individual birds, apparently migrating indpendently. Only Turkey Vultures appeared to migrate in concentrated groups of 10 or more birds.

The direction of flight and the position of the main flight path suggest that the observed raptors were following either the tree line on the landward side of the saltmarsh strip or were following the barrier island string and were deflected by the southwest hook of Sullivans Island (see Fig. 1). Most raptors are reluctant to cross open water (Heintzelman 1975) and apparently seek the shortest routes across the harbor, which

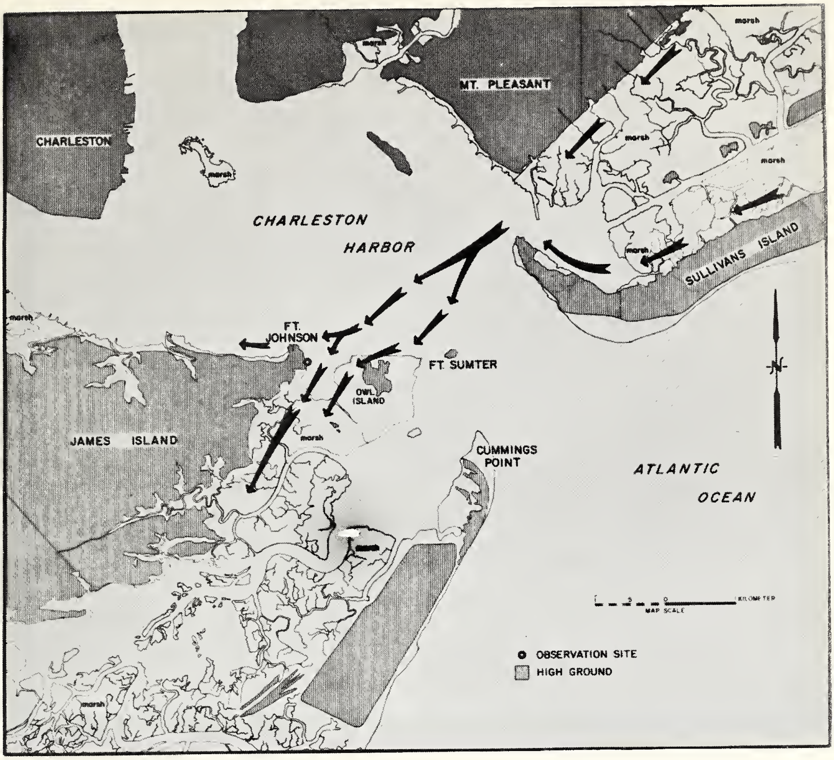
CHARLESTON
MT. PLEASANT
CHARLESTON HARBOR
FT. JOHNSON
FT. SUMTER
OWL ISLAND
JAMES ISLAND
CUMMINGS POINT
SULLIVANS ISLAND
ATLANTIC OCEAN
marsh
N
MAP SCALE
KILOMETER
OBSERVATION SITE
HIGH GROUND

Fig. 1. Map of Fort Johnson observation site and surrounding area of Charleston County, S.C., indicating general direction of hawk flight.

would be to Fort Johnson or to Owl Island where they normally could be seen and identified from the Fort Johnson observation site.

Turkey Vultures and Sharp-shinned Hawks exhibited the most concentrated movements whereas Marsh Hawks, Ospreys, and American Kestrels were more evenly distributed over the length of the count period (Fig. 2).

Weather

Peak raptor flights closely correlate with the passage of cold fronts (Fig. 3). Good flights usually followed 2 days after a cold front passed through the mid-Atlantic states. The effect of cold fronts on raptor migration is well documented from many areas. The scarcity of raptors observed in early and mid-September 1980 is probably due in part to a complete lack of cold fronts passing through the mid-Atlantic area during that period.

Peak flights also correlate with northerly winds (Fig. 4), which generally accompany cold fronts in the study area. Northerly winds may serve to concentrate raptor flights within view of the Fort Johnson count site.

Time of Day

The majority of counts were made at midday because observers were normally available at that time. Several counts that began at midmorning produced few birds until 1000 or 1030. Late afternoon counts (1700 to 1900) also were unproductive even on days

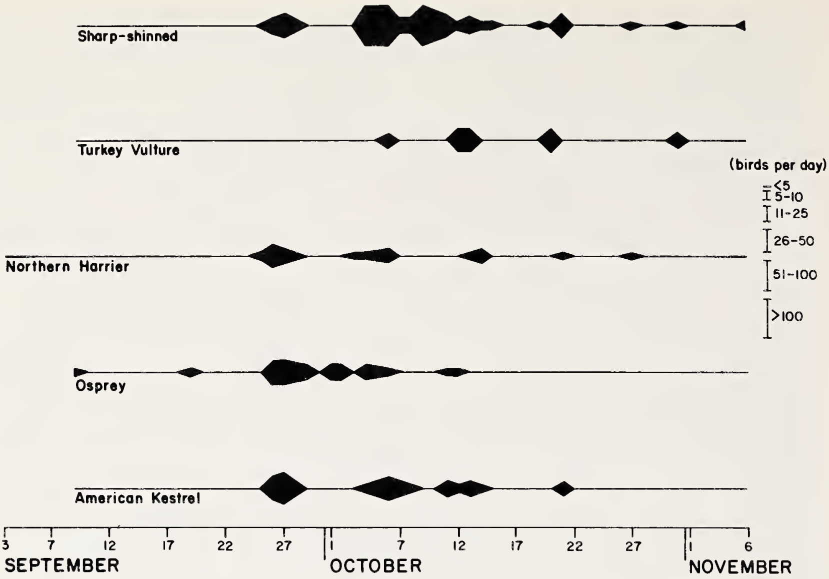

Fig. 2. Temporal migration periods for raptors observed at Fort Johnson, S.C., during 1980.

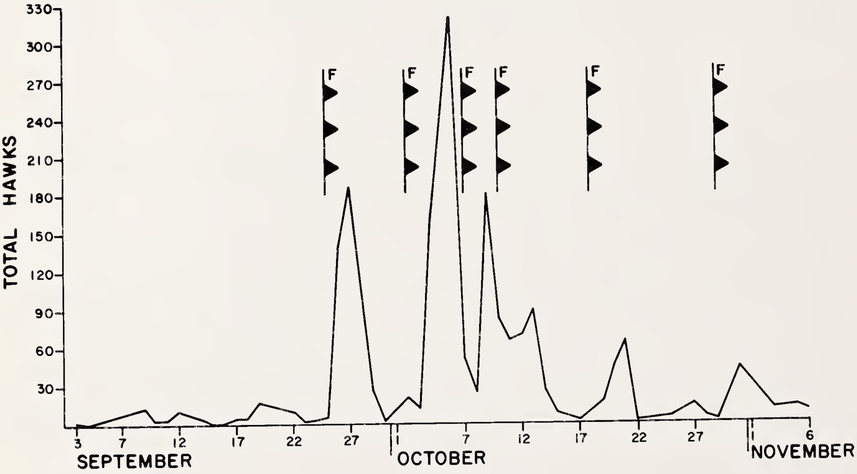

Fig. 3. Total hawks observed per day at Fort Johnson, S.C., in 1980, showing the time of passage of cold fronts through the mid-Atlantic region.

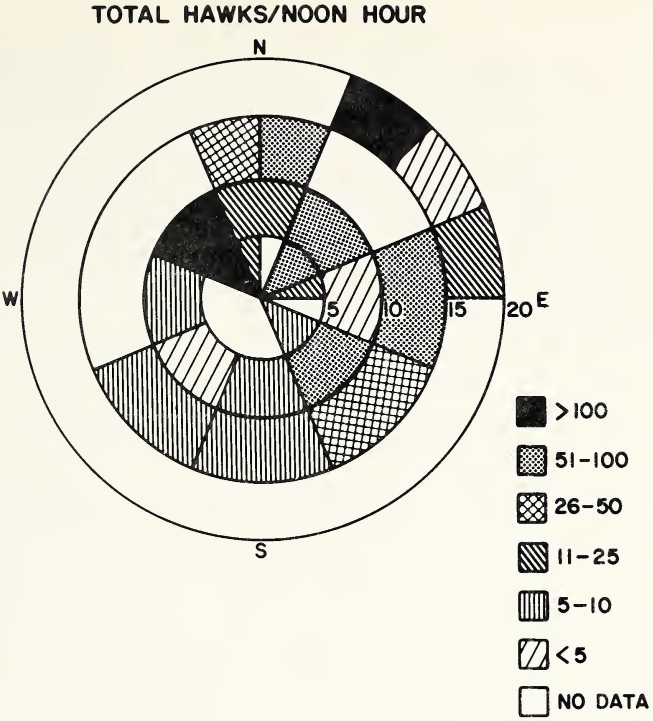

Fig. 4. Correlation of raptor migration with wind direction and speed at Fort Johnson, S.C., in 1980.

that produced good flights at midday. Numerous observers at sites that regularly conduct all-day counts have noted a "noon lull," a period at midday when the number of raptors observed temporarily declines (Heintzelman 1975). Because of the time frame of counts at Fort Johnson, it was impossible to record a noon lull, although on two occasions when counts continued beyond 1300 a sharp drop in sightings was noted.

Feeding Behavior

Migrating raptors are not often seen feeding during the day (Heintzelman 1975), but flying birds with full crops are occasionally noted. Most birds seen at Fort Johnson during the 1980 count were flying at considerable height and showed no signs of hunting, nor were any birds observed with full crops. On one occasion, a Sharp-shinned Hawk caught a small bird in heavy brush directly behind the observation site. On another occasion a Sharp-shinned Hawk approached the site about 3 m above the water and with legs extended made an unsuccessful pass at an unseen bird in low brush in front of the observation post. Both instances occurred at midday. About 1500, another Sharp-shinned Hawk was seen within 100 m of the observation site, flying at treetop level and carrying a small bird it may have caught on the Fort Johnson side of the harbor.

Marsh Hawks commonly hunted over the marshes near Owl Island, but these birds were treated as locals and were not counted. On several occasions Ospreys appeared high on the northeast horizon, paused briefly to catch fish in the harbor, and then continued on a direct southwesterly course.

LITERATURE CITED

Brown, M. 1951. Hawks and weather. Atlantic Naturalist 6:105-112.

Carter, J.H., III. 1973. Osprey migration at Wrightsville Beach, N.C. Chat 38:39.

Crossan, D.F., and R.A. Stevenson Jr. 1956. Hawk migrations along the middle eastern Seaborad, Delaware to North Carolina. Chat 20:2.

Heintzelman, D.S. 1975. Autumn Hawk Flights—the Migrations in Eastern North America. Rutgers Univ. Press, New Brunswick, N.J.

Lee, D., and B. Lee. 1978. Observations of the autumn hawk migrations along N.C. Outer Banks. ASB Bull. 25:53.

Newsletter of Hawk Migration Association of North America. 1978. IV:2.

Potter, E.F., J.F. Parnell, and R.P. Teulings. 1980. Birds of the Carolinas. Univ. N.C. Press, Chapel Hill.

Simpson, T.W. 1954. The status of migratory hawks in the Carolinas. Chat 18:15.

Sprunt, A., Jr., and E.B. Chamberlain. 1970. South Carolina Bird Life. Revised edition, with supplement. Univ. S.C. Press, Columbia.

Wayne, A.T. 1910. Birds of South Carolina. Contr. Chas. Mus. I.

612 Flint Street, Charleston, S.C. 29412; 107-G Ashley Avenue, Charleston, S.C. 29401; and 1216 Oldwanus Drive, Mount Pleasant, S.C. 29464. 26 April 1981.

CBC Roundtable

... with Louis C. Fink

Bird Miscellany

The world of birds is filled with interesting tidbits of information. The infinite variety of the habits of birds—and the people who study them—can add to our enjoyment of the hobby. Maybe there will be no harm (only pleasure) in talking about a few.

Take a bird like the Dipper, or Water Ouzel. ("Ouzel" comes from the Old English *osle,* the European Blackbird.) The Dipper feeds by walking on the bottom of streams and builds its nest behind a waterfall. I watched this unbelievable performance in Yellowstone National Park in 1936; otherwise, I should not have believed. There is a delightful account of the Dipper in *Ford Times* for August 1981. Your local Ford dealer can put you on the mailing list for this fine magazine, which publishes several bird articles each year.

Terry Moore sends his regular report of the 600 Club from 3086 River Oaks Drive, Atlanta 30339. Far out in front is Thompson G. Marsh of Colorado with his unbelievable list of 756 species! It was sad to note that the list of deceased members is headed by Edward L. Chalif of Arizona, co-author with Roger Tory Peterson of the definitive book on Mexican birds. I spent two days in Tucson with Eddie Chalif and never met a more generous host. With his guidance, I added 37 species to my life list.

Interior Secretary James Watt found himself in trouble when rumors started that his department might give some Federal Wildlife Refuges back to the States. One such spot is the home of the 78 or so Whooping Cranes in Texas. It is easy to see these rare birds in the winter at Aransas National Wildlife Refuge. There are observation towers on land and even easier views by boat for a small fee.

In Peabody, Massachusetts, somebody stole a 155-year-old leather-bound book of John J. Audubon's color lithographs. The book is valued at $250,000.

In Cleveland, Ohio, a man objected to the name Bald Eagle. Turns out that the name has been in use since 1634, and that "bald" derives from a word that means "white" in several languages.—LCF

More on the Music of Blue Jays

In the Summer issue of *Chat*, Joshua Lee mentions hearing the song of the Blue Jay and asks if others have heard this.

Even though the song of the Blue Jay is well described in Bent's *Life Histories of North American Jays, Crows and Titmice,* I was unaware of this until a trip to Pullen Park in Raleigh, N.C., on 7 February 1977. My notes from that day read (slightly altered): "At Pullen Park today (between 2:20 and 3:00 p.m.), I was startled to hear a symphony of unfamiliar notes coming from the direction of a Red Cedar. The strains of notes were from 10 to 30 seconds long, sometimes as long as 1½ to 2 minutes. The notes were in the style of a Winter Wren, but contained none of that type of notes. In the song I heard the imitation of the Common Flicker's "yucker" notes several times, and other notes reminiscent perhaps of the Dark-eyed Junco, American Goldfinch, House Finch, Brown-headed Nuthatch, and Blue Jay. I had thought the singer was a finch of some sort until I heard the flicker and Blue Jay notes mixed in. I looked upward into the cedar and saw only a Blue Jay. Sure enough, as the Blue Jay moved to higher branches (perhaps 35 feet above ground) so moved the notes of my mysterious singer. The jay flew to a Sugar Maple and began singing again after a period of silence. I circled slowly around the maple and saw that the Blue Jay was indeed the mysterious singer as it raised its open bill upwards and some sweeter-than-normal notes poured forth. This went on for several minutes until the jay gradually went into the more normal bell-like calls of the Blue Jay. The song was long, varied, rather high-pitched, and not very loud, often very soft."

I spent 11 years birding around Blue Jays in the East, and the only one I ever heard singing was on a clear and very cold February afternoon at Raleigh's Pullen Park. I imagine that it is very rare to hear this song.—KEVIN G. HINTSA, 2808 Ascot Drive, San Ramon, California 94583.

Durham County Bird List

Jim McConnell has compiled an 18-page annotated list of the birds of Durham County, N.C. Copies are $1 each from Jim at 2808 Butner Street, Durham, N.C. 27704.

Backyard Birding

... with Gail T. Whitehurst

The Brown Thrasher

Almost any day in spring or summer, as I open the door and step onto the porch, I see him coming. He may come running up the driveway or hurrying across the lawn. Head down, back straight, long brown tail held stiffly out behind him—he runs, hops, and sometimes even flies a little in his eagerness to reach me. I have no illusions that he, like a dog, is just glad to see me. Oh, no, it is what I have in my hand that he wants. Be it breakfast, lunch, or dinner, he wants to get his share before the other freeloaders discover my presence. He seems to prefer avoiding a hassle, but he can hold his own in any crowd if need be. Who wouldn't be intimidated by that long, decurved beak or fierce yellow eye? He is, of course, one of my "tame" Brown Thrashers.

The Brown Thrasher has been a favorite of mine for as long as I can remember. When I was a child, living in Asheville, N.C., we had no Mockingbirds. The Brown Thrasher was one of the first summer residents to return in the spring, and his song brought us much joy. I recall playing "house" with my dolls at the base of an old beech tree in the woods. I would be startled by the noise of something rustling leaves on the ground nearby. Was it one of my brothers, coming to spy on me? Or, worse yet, a stranger coming to hurt me and my precious "children"? No! It was a lovely brown bird with a long beak and tail and a bright yellow eye. It was throwing leaves in all directions, looking for its dinner. In some of the mountain counties it is called the "ground thresher."

The thrasher is basically a shy bird, preferring to stay out of sight. It nests in thick hedges or low bushes and goes about its business in a quiet manner, except for the "thrashing of the leaves" and glorious song in spring. The song is far more beautiful than that of the Mockingbird and much less tedious. The latter will get on to a new sound and keep it up for hours on end—and during the night, even! But like the Mockingbird, his cousin, the thrasher sings from the highest point in his territory. Near our house there is a tall transmission line tower. It is not unusual to find a male thrasher singing from its top.

A number of years ago, when we first lived here, there were very few birds around. The people who lived here before us had kept a cat. Within a year or so, with the cat gone, more and more birds began to show up and hang around. One morning in the summer of our second year, I looked out the window and saw an adult Brown Thrasher with a band on his foot. Close behind him, walking up our driveway, was a nearly full-grown fledgling. The old bird and the young one hunted our yard for several days. The banded adult departed, but the young one stayed on. We have never been without a thrasher since that day. From him, and his descendants, we have learned much about this species. I cannot recall now whether that young bird stayed with us all winter as I was not keeping records or notes at the time. He was around in late winter. In the spring, a female was wooed by our bird, and they nested nearby.

Meanwhile, I was trying to "tame" a male Rufous-sided Towhee by offering him sunflower seeds and bits of bread (the cornmeal and peanut butter mixture I now use had not been invented then). The towhee was feeding young and soon overcame his fear in his eagerness to get food for his babies. Since the towhee and thrasher feed on the ground under the hedges, it soon became apparent that the thrasher was aware of the free and easy food. By the end of the summer, both towhee and thrasher would come fairly close to me as long as they had young to feed. I called the thrasher "Pretty Bird," and it is that name to which all thrashers now respond when I call.

Do I hear someone asking, "How in the world can you tell a male from a female thrasher?" My reply is that the male is the one that is singing. Also, over the years, I have noted that the female tends to be slightly smaller and daintier than the male. Close and continuous observation of birds reveals small differences in size, markings, and coloration (in some pairs I have known, one will be plain brown and the other more rufous). And personality traits vary from bird to bird.

During the winter, the adult males remain here, coming to feed from time to time. The females and immatures disappear, and, I presume, go farther south and/or east. At any rate, the females usually return in late winter, sometimes in early February. The male has already begun to sing and stake out his territory. When the female shows up, he tries to chase her away as an intruder. Before long, he realizes his mistake and courthsip is under way. No pair of birds is more devoted. He sings as he never sang before—long, loud, and lilting. I often see them hunting together, and they remind me of a pair of hand-holding lovers. Then one day I see only one thrasher, which keeps up his song most of the day, and I say, "Aha! She must be sitting on a nest!"

Some years I run across the nest by chance—I never go hunting for one. It is likely to be in a thick and/or thorny shrub, such as a Pyracantha or Blackberry Rose. One year I was able to watch as the birds built. Both birds worked together on the basic foundation of large sticks and twigs. The female completed and lined the nest with finer material while the male sang to her from a nearby perch. As soon as the nest was ready, the female deposited two eggs, a day apart. She wasted no time beginning incubation. She sat upon the eggs faithfully, through rain and shine, chill and heat, day and night. She left only for brief periods, during the warmest part of the day, to feed and get water. The male did not get on the nest but remained nearby to guard it. At the end of two and a half weeks, the eggs hatched (perhaps a day apart, I did not wish to disburb the birds to find out). The male ceased his singing and went to work hunting food while the female brooded the naked, helpless babies. Within a week of hatching, the young were sufficiently feathered to protect them from the elements (except rain); the female could leave them for short periods and join the male in feeding them.

By the end of the second week, the nestlings had grown to about half the size of the parents and were becoming quite active. They spent considerable time standing on the rim of the nest, flexing their muscles and exercising their tiny wings. Within a few days they left the nest—one remaining a night longer than the other.

It has been my observation that young birds (of several species) leave the nest when they want to, not that the parents have to urge them. In fact, the parent birds generally appear agitated and spend much time scolding and coaxing the fledglings to safe perches above ground. They are especially upset if something or someone has come too close to the nest, causing the young to leave prematurely. If one cannot resist watching nesting birds, it is beter to do it at a distance, with binoculars. We delay pruning shrubbery in the spring if there is any sign that a bird may have a nest there. Thrasher nests are usually pretty safe from cats, but once the fledglings are out, they are vulnerable to many predators.

It is amazing how fast a newly fledged thrasher can run, if need be. However, it can barely fly, if at all. Getting a baby off the ground and up into a shrub or tree takes time.

The fledgling has to hop, fluttering its tiny wings, from one twig to another. Except for an immediate threat of danger, the parent thrashers do not use their harsh and urgent scold note, but call to the young with a soft chirruping sound. They use this call also when trying to locate the fledglings once they can fly and move about more freely. The male occasionally sings a whisper song to find a young one.

Most of the time, the young respond as desired by the old birds. But not always! Occasionally a fledgling, like Epaminondas, "doesn't have the sense he was born with" and cannot or will not behave. I recall one instance where the nest was next to the street. One fledgling hopped into the street. No amount of coaxing could make it move. I even interfered by picking up the baby bird and placing it in a bush. Within minutes, it was back in the street again. Of course, the inevitable happened—it was run over by a car!

When the baby thrashers are still in the nest, they remain fairly quiet and do not call attention to themselves as do Cardinals and American Robins. When first fledged, they stay hidden and quiet for the most part. The call of a fledgling is pleasant and soft. And oh, how cute they are! They seem so tiny, with big dark eyes, little tufts of feathers over the eyes, and short stubby tails. They are dark brown in color, but have the unmistakable streaked breasts and wing bars of the adult. As they begin to grow, they follow their parents about. Their begging is subdued—not harsh and raucous as is a young Blue Jay, Starling, or Brown-headed Cowbird. The sound is more of a whimper.

The adult birds divide the fledglings and head in opposite directions with them—a survival tactic, no doubt. Usually all of our thrashers are double-brooded and have two young per nest. When something happens to one of the first brood, I have known them to have three in the second brood. Depending upon whether it is the firt brood, or the second, the amount of time spent with the adults varies. With a first brood, the male takes both young when the female begins a new nest. I might mention here, that the courtship period for the second nest is very brief, with the male singing only a day or two—perhaps a reinforcement of the pair bonding. A short time before the second brood hatches, the male takes the young away and leaves them—just as the old bird left me my first thrasher. After the second brood is on its own, the old birds permit the young to remain in the territory, even after they have ceased to feed them. By this time, the old birds have begun their postnuptial molt and spend much of their time in the shade, just resting.

The second brood appears to get far more time and attention than does the first one. By the time these birds are out of the nest, it is hot weather for sure. The old birds begin sunbathing and dustbathing, the young ones watching and following suit. It is during these periods that I have watched the young birds at play—chasing each other and fledglings or immatures of other species, such as towhees and robins. They pick up new objects, mouthing them to see what they are and if they are edible. They begin to find a bit of food on their own here and there. They also watch the old birds catch and beat a grasshopper or cricket to pieces, and sometimes, the old bird will eat the food, not giving the young a bite! Then they will whimper a bit. As the young birds grow and prove to the parents that they can get their own food, the old birds begin to leave them for long periods of time, continuing to feed them occasionally. Here, where I feed them, the old birds bring their juveniles and "dump" them on me, and the youngsters quickly learn to come for my hand-outs. After a while, the old birds stop feeding the young at all and will run them away if they venture too close.

As the years go by, we lose some thrashers to illness or accident, but there is always a new generation coming along. As the numbers of individual birds and species that come here for food have expanded, I find it more difficult to keep up with and recognize some individual thrashers—but they know me! Well, they know my food.

(Continued on page 103)

General Field Notes

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Behavior of American Woodcock and Other Birds in Coastal North Carolina During the Blizzard of 1980

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Wintering American Woodcock (*Philohela minor*) arrive in coastal North Carolina in November and remain until early March (Stamps and Doerr 1978). During late February and early March of 1980, two periods of snowfall adversely affected many birds wintering in this area. Some of these birds, especially woodcock, usually probe soft unfrozen ground for earthworms.

On my woodcock study area near Lake Mattamuskeet National Wildlife Refuge in Hyde County, N.C., the first snowfall occurred 26 February and left an accumulation of 5.0 to 7.5 cm, which persisted for 24 hours. The second snowfall began in the early morning of 1 March. It continued into the next day and left an average accumulation of 36 cm, which persisted for 6 days. During this time the deep snow forced woodcock to probe and feed in the few open unfrozen areas available. During the day they left their usual diurnal foraging sites in the thickly forested swampy lowlands to feed in open yards, under shrubbery around homesites, on the slopes of sheltered drainage ditches separating agricultural fields, and along roadsides cleared by snow plows.

The half-meter strips cleared by plows along each side of the roads attracted woodcock and other ground-feeding birds such as Red-winged Blackbirds (*Agelaius phoeniceus*), Dark-eyed Juncos (*Junco hyemalis*), American Robins (*Turdus migratorius*), Eastern Meadowlarks (*Sturnella magna*), Mourning Doves (*Zenaida macroura*), Killdeer (*Charadrius vociferus*), Cardinals (*Cardinalis cardinalis*), Blue Jays (*Cyanocitta cristata*), Starlings (*Sturnus vulgaris*), and Common Snipe (*Capella gallinago*). Road kills were common. In one randomly chosen 200-m strip of highway, I counted 25 robins and three woodcock that had been killed by vehicles.

At sunset, I observed three woodcock circling over snow-covered agricultural fields. Instead of landing in this customary roosting site, they landed in the center of the highway and remained there for about 10 minutes before flying back into the swamp forest to roost on top of the snow. Woodcock and other species also roosted on clear ground under old barns and other outbuildings. I flushed 25 birds, including woodcock, Mourning Dove, Common Snipe, robins, and Killdeer, from under one small (37 m^2) building.

Some woodcock mortality can be directly related to their weakened condition due to their inability to feed. When flushed, their flight was more labored than normal with slower wingbeats. Others were so weakened by the third day, presumably from lack of food, that flight was impossible; I caught one by hand in an open field. Such emaciated birds were easy prey for avian and other predators. Four woodcock had been killed by house cats at one homesite. I found evidence that Barn Owls (*Tyto alba*), Red-shouldered Hawks (*Buteo lineatus*), and even Opossums (*Didelphis marsupialis*) had killed woodcock.

Toward the end of this 6-day freeze the effects of starvation were evident in three male woodcock I examined. They revealed very sharply keeled sternums. Their weights were 95 g, 104 g, and 106 g, averaging 102 g, which is 37% less than the average weight (161 g) of migrating male woodcock at this time in the study area.

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LITERATURE CITED

Stamps, R.T., and P.D. Doerr. 1978. Woodcock on North Carolina wintering grounds. Proc. Annual Conf. of Southeastern Assoc. Game and Fish Comm. 30:392-399.

Female Wood Duck Apparently Killed by Black Rat Snake

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At about 0830 on 23 April 1975 I went into my observation blind erected near a Wood Duck (*Aix sponsa*) nest, planning to make photographs of the brood of 11 ducklings leaving their nesting box. I had checked the nest in midafternoon of the preceding day and found that the brood of ducklings could be expected to leave their nest in the forenoon of 23 April. After watching from the observation blind until shortly after noon without seeing the ducklings leaving their nest, I looked into the nesting box and found there were no ducklings in the nest and the mother Wood Duck was dead. The plumage on her head and neck was deranged, showing evidence of drying after having been deranged when wet. I assumed that the mother Wood Duck had been killed by a Black Rat Snake (*Elaphe obsoleta*) that had attempted to eat her. Apparently the snake had swallowed the head and neck of the mother Wood Duck and disgorged these after reaching the duck's body, which was too large to be engulfed by the snake. It seems likely that the snake tried to eat the mother Wood Duck before eating the ducklings, as it is unlikely that the duck would have remained in the nesting box while the snake ate her offspring.

Although I had no doubt that I was correct in my reading that the mother Wood Duck had been killed by a Black Rat Snake, I hesitated to publish the observation because I did not actually see the snake at the nest. Furthermore, I doubted that a snake could have killed the mother Wood Duck, eaten all of the brood of ducklings, and disappeared from the spot in the short time between my two visits to the nest. However, I had earlier found other broods of newly hatched Wood Ducks nearby eaten by Black Rat Snakes that I saw in the nesting boxes. Now, Fendley (Wilson Bull. 92:526-527) reports having found Black Rat Snakes in nests in South Carolina with dead Wood Ducks, the Wood Ducks showing evidence of having been killed by the snakes. The necks of the birds were twisted, the neck of one of the birds possibly being broken. The dead Wood Duck I found showed no evidence of having struggled as was suggested by the conditions of the birds found by Fendley. Although I could not determine whether constriction had been used by the snake, I assumed that my Wood Duck had been killed at least partly by the bird's inability to breathe with her head inside the snake's body.

First South Carolina Specimen of the Black-legged Kittiwake

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In response to a call from the Law Enforcement Division of the South Carolina Wildlife and Marine Resources Department concerning oil-soaked birds, Knight investigated the beach at Folly Island, near Charleston, S.C., the morning of 19 January 1980. The only bird found appeared to be a kittiwake. It was emaciated and had oil on its breast, wings, and head. The weather at the time, through cold, was clear and sunny. Knight took the bird to the Sea Island Veterinary Hospital where Pfaff identified it tentatively as a Black-legged Kittiwake (*Rissa tridactyla*). Pfaff treated the bird for shock and removed as much of the oil as possible. Nevertheless, the kittiwake died 2 hours later.

Albert E. Sanders of the Charleston Museum confirmed the identification of the Kittiwake (as *R. t. tridactyla*) and had it prepared as a study skin (ChM No. CB2349). The specimen, an adult female in fresh, early winter plumage, weighed 236.4 g. Measurements were total length 38 cm, tail 14 cm, wing 30 cm, tarsus 3.2 cm, bill 3.5 cm, and ovary 1.0 x 0.6 cm. The stomach contained grit, coquina shells (*Donax* sp.), and ingested oil.

The Folly Island specimen represents the first record of the Black-legged Kittiwake in South Carolina. Grant, Browne, and Parnell (1976, Chat 40:12-13) stated that there are no published records for South Carolina, but suggested that this species undoubtedly occurs offshore during winter. They summarized 17 sightings in North Carolina waters since 1940. More recently, Lee and Booth (1979, Am. Birds 33:719) reported additional records for North Carolina and gave the status of the kittiwake in that state as a common winter resident. Additional field work is required in order to establish its status in South Carolina coastal waters.

Range Expansion of Nesting Tree Swallows

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On 4 May 1981 at 1615 EDT I noticed a pair of Tree Swallows (*Iridoprocne bicolor*) clinging to an empty bluebird nest box while a male Eastern Bluebird (*Sialia sialis*) attempted to drive them away. The bluebird, which was nesting about 70 feet away at the time, seemed determined to keep the swallows from infringing on his territory. The male Tree Swallow would fly down to the nest box, the female would join him, and the male bluebird would try to run them away from the box. I watched this behavior for about 30 minutes. Although I at first assumed the swallows were just passing through in northward migration, subsequent visits to the site provided the first nesting record for Tree Swallows in Buncombe County, N.C., and the second for the state.

The swallow nesting site is 1.5 miles N of Asheville on NC 191. The box is 4 feet above ground and attached to a telephone pole in an open field about 50 feet from a dwelling. The elevation is 1980 feet. The French Broad River is nearby.

I visited the site almost daily from 4 through 29 May and less frequently until the day the young Tree Swallows fledged, 21 June. Although the adult swallows were at the

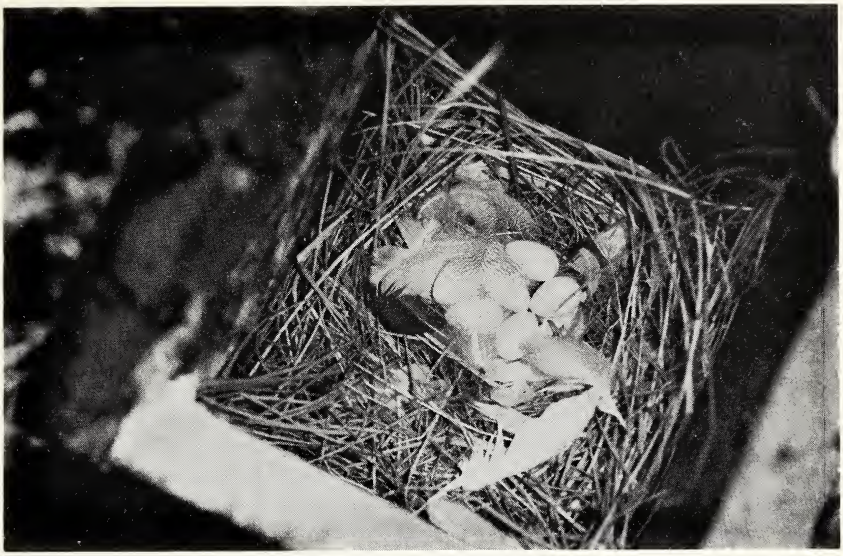

Fig. 1. Shown above are the nest and six eggs of a pair of Tree Swallows that bred successfully in Buncombe County, N.C., in 1981. (Photo by Bill E. Duyck)

chosen box on 5 and 6 May, it was not until the seventh that I found a few pieces of grass 4 to 6 inches long in the bottom of the box. On 9 May I finally saw the female carrying material into the box. On this date I noticed that the male bluebird was no longer harassing the Tree Swallows, though I could not determine when the bluebird ceased this behavior.

By 10 May the nest box was one-third full of nesting material. The cup had been completed by 12 May when I found two feathers in the nest. On 14 May a second female appeared on the scene. Apparently a transient, she perched on the power line for a few seconds and continued on her way.

One egg was laid each day from 15 through 20 May, completing the clutch of six eggs. During the egg-laying period more and more feathers were added to the nest (Fig. 1). The female was incubating on 21 May, and the male was carrying feathers to the nest.

When I visited the box on 23 May, the incubating female left the nest. While she was gone, the male entered the box and looked out the entrance hole. After about 3 minutes, the female returned. Just at the last second the male left the nest. The female immediately alighted upon the box and went in. According to Bent's *Life Histories*, this is normal behavior for nesting Tree Swallows.

Feathers continued to be added to the nest at least through 26 May. I identified some as dove and guinea fowl feathers.

Unfortunately, I was not able to obtain data on the hatching of the eggs or development of the nestlings because other commitments made regular visits impossible from 30 May through 16 June. On 20 June I found all six young swallows alive in the nest box and apparently about ready to fledge.

I returned at 1030 EDT on 21 June. When I took the top off the box, there were only five nestlings inside. The adults really were giving me a dive bombing. Then I realized the young were fledging and immediately replaced the top. Suddenly the sky was filled with Tree Swallows. The young left the box so rapidly I couldn't count them, but the last one departed at 1040 EDT. The parents and the five young Tree Swallows soon left the nest site and, as is their habit, did not return.

Again I removed the top. There was one young swallow in the nest, but it was dead. Judging from the size of it, I figured that it was the last one to hatch. Apparently it was suffocated by its larger nestmates shortly before they fledged.

The only previously reported nesting of the Tree Swallow in North Carolina occurred in Ashe County in 1979 (Chat 44:9). That nest was in an old woodpecker cavity in a tree stub beside the New River at an elevation below 3000 feet. The Buncombe County site is nearly 100 miles SW of the Ashe County site, and it lies at or near the southern limit of breeding in the East.

Rough-winged Swallow Nesting in Coastal North Carolina

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During early May 1981 we found two nesting sites for the Rough-winged Swallow (*Stelgidopteryx ruficollis*) on the Outer Banks of North Carolina. These represent the first nesting records for this species from this region and one of the few confirmed ones for the coastal portion of the state (see Fig. 1).

Behind the Marine Resources Center on Roanoke Island, Dare County, we observed Bank Swallows (*Riparia riparia*) feeding over Croatan Sound and flying about an eroded bank. One bird was seen leaving a hole, which contained an unfinished

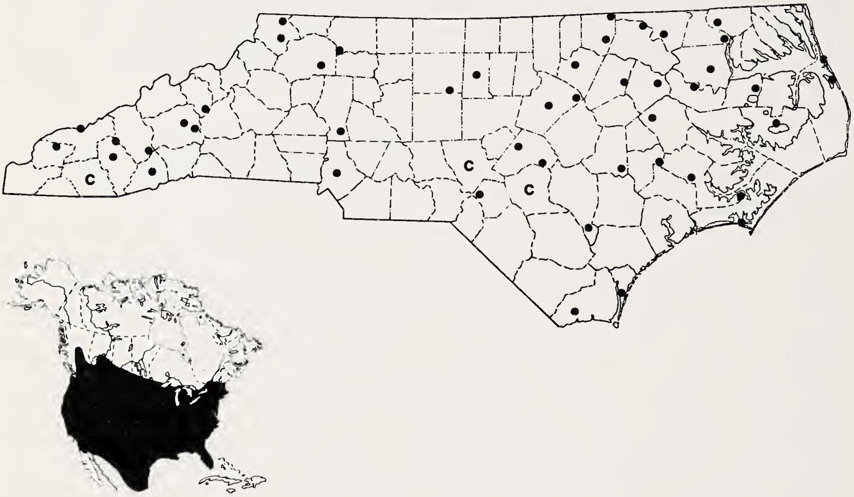

Fig. 1. Known nesting localities of the Rough-winged Swallow in North Carolina (dots). Counties from which nesting is reported but for which specific sites are unknown are marked with a C. Sources of records are on file at the North Carolina State Museum.

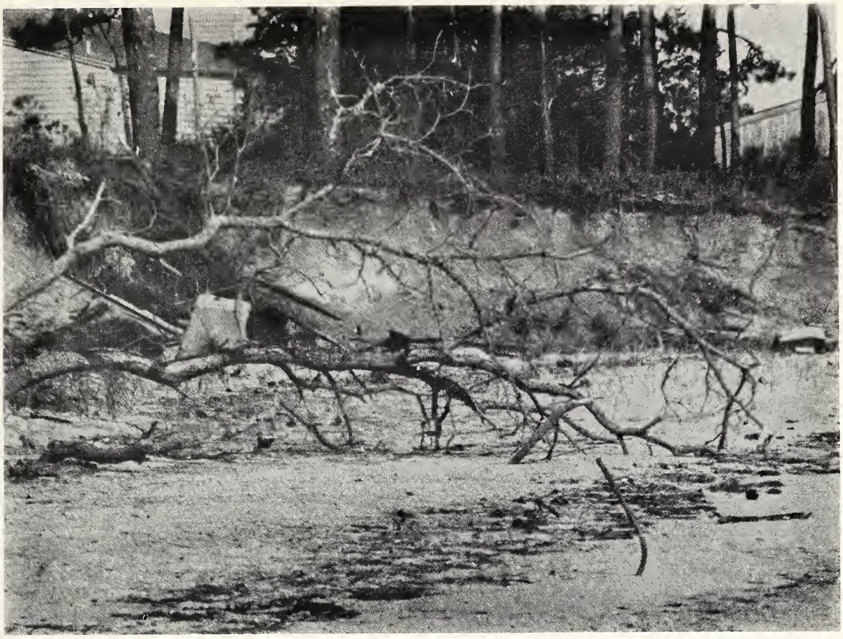

Fig. 2. Rough-winged Swalllows nest in an eroded embankment on Roanoke Island, Dare County, N.C. Buildings in the background are part of the Marine Resources Center near Manteo.

nest. Several birds perched nearby and were well studied. There were 10 to 15 vocalizing individuals in the area, all of which appeared to be Bank Swallows. This was on 6 May 1981. Later that day a second nest site containing a single pair of swallows was found in Nags Head Woods in the side of a sand pit currently used as a local dump. These birds were Rough-winged Swallows.

On 13 May 1981 we revisited both sites hoping to confirm the breeding of the two species. At this time only Rough-winged Swallows were found at both sites, and at least two nests contained eggs (others were too deep to be reached). The Bank Swallows seen earlier apparently were migrants, although it is interesting that they were investigating potential nest sites during migration.

The swallow burrows did not seem to be new, so we assume that they were also here during the 1980 nesting season and perhaps in prior years as well. Eloise Potter observed large numbers of Rough-winged Swallows in and near Nags Head woods 9 to 11 May 1978 while conducting a breeding bird survey of the area, but she was unable to locate any nests. At the Nags Head site the banks used by the swallows were unvegetated, but the sand pit, while close to water and other open areas that would be suitable for feeding, was completely enclosed in a mature pine-hardwood forest. At the Roanoke Island site (Fig. 2) the bank was vegetated (Loblolly Pine, *Pinus taeda*; American Holly, *Ilex opaca*; greenbriers, *Similax* sp.; Muscadine Grape, *Vitis rotundifolia*; Coral Honeysuckle, *Lonicera sempevirens*; and Pokeweed, *Phytolacca americana*), and several of the nest openings close to the top of the bank were concealed by overhanging vines.

All of the coastal county nesting records (see Fig. 1) appear to represent a recent invasion. Quay (1959, Birds, Mammals, Reptiles, and Amphibians of Cape Hatteras

National Seashore Recreational Area, U.S. Dept. of Interior 1-88) did not record the species nesting in the Outer Banks area. Rough-winged Swallows first appeared in the Beaufort area about 20 years ago (J.O. Fussell III, pers. comm.), and they were absent in the southeastern portion of the state prior to the 1960s (Funderburg and Quay 1959, J. Elisha Mitchell Sci. Soc. 75:13-18).

Bird students should be aware that Bank Swallows and Tree Swallows (*Iridoprocne bicolor*), while rare mountain nesting species in North Carolina, are regular nesting birds in the tidewater region of the Chesapeake Bay. An extension of their breeding range into coastal North Carolina would not be unexpected. The rapid expansion of nesting Barn Swallows (*Hirundo rustica*) during the 1950s and 1960s, unlike that of the Cliff Swallow (*Petrochelidon pyrrhonota*) (Grant and Quay 1977, Wilson Bull. 89:286-290), went relatively undocumented. This is publication 1981-8 of the North Carolina Biological Survey.

[NOTE: The North Carolina Biological Survey is maintaining nesting records for all the breeding birds of the state. Eloise Potter has been primarily responsible for assembling these records. Persons with definite nesting records for any species are urged to send information to her. Work maps such as the one for the Rough-winged Swallow will appear in *Chat* when they will enhance articles and notes discussing distributional patterns. It is hoped that the occasional appearance of these maps will encourage contributors of breeding records. As can be seen here, nesting information even for the common species is relatively fragmentary.—DSL]

Cliff Swallows Nesting on Fontana Dam, N.C.

JIM McCONNELL
2808 Butner Street
Durham, N.C. 27704

Birds of the Carolinas (1980) summarizes the recent expansion of the Cliff Swallow (*Petrochelidon pyrrhonota*) as a breeding species in the Carolina piedmont and coastal plain since it was first reported nesting at Hartwell Dam on the upper Savannah River in the spring of 1965. Its preference for dam sites, the dams serving as sheltered locations for the attachment of the swallows' characteristic mud nests, was also noted. No nesting activity has been reported for any of the larger dams or other suitable areas in the mountain region of either North Carolina or South Carolina. The discovery of a nesting pair of Cliff Swallows on 15 June 1981 on the Graham County side of the Fontana Dam by Owen McConnell and me represents the first evidence of the logical extension of breeding into the mountain region where suitable habitat exists. Accordingly, Stupka, in his *Notes on the Birds of Great Smoky Mountains National Park* (a park adjacent to Graham County and including the Swain County portion of Fontana Dam) recognized the Cliff Swallow only as a "very common fall migrant in the vicinity of the park." His studies were concluded in 1963, before the advent of the species as a breeder in the Carolinas.

The Cliff Swallows were carefully observed while they were flying with Barn and Rough-winged Swallows in the vicinity of the dam. The pair had placed their jug-like mud nest under a concrete overhang at the top of the dam about 35 m from the shore and a few meters from the first flood gate. This nest was entirely separate from a colony of Barn Swallows occupying the flood gate openings on the opposite side of the dam. We watched the nest between 1400 and 1500 EDT, during which time both adults made frequent visits. An adult bird would arrive, on the average, once every 5 to 10 minutes. There seemed to be no synchronization between the two adults' visits to the nest. Sometimes they would arrive simultaneously, but at other times at well-spaced intervals. They stayed in the nest from 1 to 3 minutes, apparently feeding young. No evidence of additional pairs was found around the dam, and only time will tell whether the species will establish a colony here.

Distraction Display of Chestnut-sided Warbler

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At 1100 EDT on 16 June 1981 I was hiking along a dirt road leading up the side of John's Knob (1200 m) in Graham County, N.C., when a female Chestnut-sided Warbler (*Dendroica pensylvanica*) flew from a small *Rubus* thicket along the roadside and alighted on the ground about 3 m from me. The bird was a female, showing a chestnut stripe broken in several places on its sides, a white cheek with only a trace of black below the eye, and generally less intense and less extensive greenish-yellow towards the back of the head and back than would be expected on a male. It began to chip excitedly and to drag its wings, especially the left one, while running along the ground in front of me. When I approached the bird it flew into a small tree 2 m from my head and began chipping "in protest," obviously excited and with its crown erect. A 10-minute search of the immediate vicinity failed to turn up either a nest or young, but this does not mean that one or the other did not exist. Throughout the search the bird engaged in numerous broken-wing displays and chipped frequently. Interestingly, the bird would feign a broken wing only when I was within a small area with a diameter of about 4 m. The bird's mate, a well-marked male, was seen foraging close by, but it did not engage in such antics. Lee noted that among the warblers breeding in the Carolinas only the Black-and-white and the Swainson's have been recorded performing broken-wing acts (Chat 44:111-112).

BACKYARD BIRDING

(Continued from page 95)

The females and immatures begin to disappear in late September and early October. Usually they move on following a cold front that has brought with it a number of migrant thrashers from the north. When these new birds appear, there is much scolding and chasing for a day or two and then all are gone. The males who winter here seem to wander during this period in early fall, but by November, can be found in their accustomed haunts.

For the past few winters we have had two males staying over. Naturally, they do not get on well together. One stays in the hedge on one side of the house and the other on the opposite side. Except during extremely cold or snowy times, they rarely come in contact with each other. At these times, they appear to be somewhat more tolerant of each other. However, when the days begin to warm and grow longer, the two male thrashers are often seen chasing each other. When the territories are staked out, one must not cross over into that of the other. This usually means that they nest in yards other than mine, but they continue to slip in for food.

During the winter months the male thrashers revert to their typical shyness. I rarely see them except when they come for food. On warm winter days, I can hear one or both of them singing a whisper song from a concealed perch in an evergreen. By mid-January, they sing more often and for longer periods of time. When mid-February comes, singing begins in earnest as they map out their territories. With the return of the females, the singing reaches its highest and lovliest peak—from dawn until dark.

BRIEFS FOR THE FILES

HARRY E. LeGRAND JR.

(All dates 1981 unless otherwise indicated)

COMMON LOON: Douglas McNair noted a late individual on White Lake in Bladen County, N.C., on 24 May.

RED-NECKED GREBE: Quite rare was a grebe near Morehead City, N.C., on 6 March, as seen by Allen Bryan.

NORTHERN FULMAR: Dave Lee reported 207 birds in the Gulf Stream off Cape Hatteras, N.C., on 26 March. The previous high count of fulmars in North Carolina waters was nine individuals.

CORY'S SHEARWATER: Pelagic trips off Charleston, S.C., tallied two on 26 April (Dennis Forsythe et al.) and one on 3 May (Perry Nugent, Gardner Miller, et al.).

GREATER SHEARWATER: A pelagic trip led by Robert Ake and Paul DuMont out of Hatteras Inlet, N.C., on 24 May yielded three individuals. Other shearwaters on this trip were 11 Cory's, six Sooties, and 36 Audubon's.

SOOTY SHEARWATER: John Fussell counted five migrants from a pier at Atlantic Beach, N.C., on 27 May.

AUDUBON'S SHEARWATER: Very early were two seen off Wilmington, N.C., on 27 March (Dave Lee).

BLACK-CAPPED PETREL: This species was noted on four pelagic trips off the North Carolina coast during the spring. Two seen by Dave Lee off Wilmington on 27 March were the first ever for the state in that month and provided one of the very few records south of Cape Lookout. Other reports were seven off Oregon Inlet on 2 April (Dave Lee), 14+ off Oregon Inlet on 14 May (Lee), and 18+ off Hatteras Inlet on 24 May (Robert Ake, Paul DuMont, et al.).

LEACH'S STORM-PETREL: Dave Lee collected one off Oregon Inlet on 2 April, an early date for this species. Lee also saw two in the same area on 14 May, and on the pelagic trip led by Robert Ake and Paul DuMont four or five were observed on 24 May off Hatteras Inlet.

WILSON'S STORM-PETREL: An early individual was collected by Dave Lee off Oregon Inlet on 2 April, and 75 were noted off Hatteras Inlet on 24 May (Mike Tove, Paul DuMont, et al.). John Fussell observed single birds from a pier at Atlantic Beach, N.C., on 9 and 10 May.

WHITE PELICAN: One was a good find at Shutes Folly Island near Charleston, S.C., on 27 February, as seen by Ted Metcalf.

GREAT CORMORANT: Single birds were rather rare at Oregon Inlet on 2 April (Dave Lee) and at Huntington Beach State Park, S.C., on 26 April (Perry Nugent).

DOUBLE-CRESTED CORMORANT: Inland reports, all in North Carolina, were: as many as four at Beaverdam Reservoir in northern Wake County from 12 March to 20 May (Bill and Margaret Wagner et al.), one at Chapel Hill on 10 May (Mike Tove), two near Fayetteville on 13 May (Philip Crutchfield), two on White Lake in Bladen County on 24 May (Douglas McNair), and four on Bay Tree Lake in the last county on 24 May (McNair).

ANHINGA: The species was again noted in the Fayetteville area and might be nesting there, as four were seen at Jessup's Mill Pond on 29 May by Philip Crutchfield. John Fussell saw 11 at Walker's Mill Pond near Newport, N.C., on 14 May; breeding has been suspected there for several years.

MAGNIFICENT FRIGATEBIRD: One was seen over Holden Beach, N.C., on 6 June 1980 by Darryl Moffett. An apparently adult male (no white seen in the plumage) was observed flying over Cape Lookout, N.C., on 17 May by Skip Prange, Chip Davis, and others; and a third bird was seen by Larry Crawford at Beaufort Inlet, N.C., on 6 June.

GREAT BLUE HERON: Jay Carter discovered 18 nests on 4 May at a cypress pond on the Sunny Point Military Ocean Terminal near Southport, N.C.

CATTLE EGRET: Inland sightings of note were an early individual at Fayetteville on 18 March, with 30+ there on 1 May (Philip Crutchfield); four in northeastern Guilford County, N.C., on 20 April (Allen Bryan); two near Raleigh, N.C., on 29 April (Steve Graves); and 11 near Bennettsville, S.C., on 30 May (Douglas McNair).

SNOWY EGRET: Rare inland in spring were three to four at Fayetteville from 22 April to 1 May, as reported by Philip Crutchfield.

BLACK-CROWNED NIGHT-HERON: Presumably a late migrant was an adult seen by Tom Haggerty near the Kerr Scott Reservoir dam in Wilkes County, N.C., on 22 May.

AMERICAN BITTERN: One noted by Douglas McNair near Rockingham, N.C., was rather late on 9 May.

AMERICAN FLAMINGO: Two flamingos were observed by T.H. Parker near the lighthouse on Cape Island, S.C., on 13 May.

BRANT: Steve Graves and Mark Crotteau saw flocks of 250 and 200 near Ocracoke and Hatteras Inlet, N.C., respectively, on 10 March. One was late at Fort Macon State Park, N.C., on 16 April (Skip Prange).

PINTAIL: A pair, apparently mated, was noted at Pea Island, N.C., on 23 May by Bruce Lord and Herb Wilson.

AMERICAN WIGEON: A male was rather late at Beaufort, N.C., on 4 May, as seen by John Fussell et al.

REDHEAD: Steve Graves observed a very late male at North River marsh near Beaufort on 11 May.

OLDSQUAW: An excellent total for so late in spring was 200 individuals seen from the Ocracoke-Swanquarter, N.C., ferry on 18 April by Wayne and Fran Irvin. Also seen on this ferry crossing were 150 scoters (Surfs and Blacks).

HARLEQUIN DUCK: Very unusual away from the immediate coastline was an immature male noted by John Fussell at Swanquarter on 2 March. Allen Bryan observed the bird 3 days later.

KING EIDER: Rare and extremely late were a male and four females at Price's Inlet near Charleston on 1 May, as seen by John McCrady and Fred Horlbeck.

COMMON MERGANSER: A female was carefully studied by Ray Chandler and Michelle Cawthorn at Oregon Inlet on 11 and 12 April. This species is seldom seen after March in the Carolinas, and the saltwater habitat is also rather unusual.

RED-BREASTED MERGANSER: Good totals for an inland locality were 50 at Beaverdam Reservoir on 16 March and 53 there on 18 March, as reported by Bill and Margaret Wagner and Johnnie Payne.

SWALLOW-TAILED KITE: Most unusual for the piedmont was a kite seen by Tom and Elizabeth Haggerty and Joe Williams approximately 9 miles SE of Siler City, N.C., on 22 May. Other records from the same state were individuals at Morehead City on 13 April (John Fussell), at Ocracoke Island on 25 April (Peter Vankevitch), and on Core Banks near Atlantic on 1 May (Kevin Kacer).

ROUGH-LEGGED HAWK: One was seen at Jordan Reservoir, in eastern Chatham County, N.C., on 14 March by Allen Bryan, apparently the same hawk that was noted there in February.

BALD EAGLE: One to two were seen on many dates this spring at Beaverdam Reservoir (Bill and Margaret Wagner et al.), and an immature was observed over residential Raleigh on 27 March by Gail Whitehurst. In the North Carolina Sandhills were an adult seen by Tom Howard and party near Aberdeen on 23 March and an immature seen at Hoffman on 11 May by Douglas McNair.

MARSH HAWK: An individual was late at Jordan Reservoir on 16 May, as reported by Bob Lewis, Allen Bryan, and Mike Tove.

PEREGRINE FALCON: Quite rare and late was an adult noted by Ricky Davis in northwestern Pender County, N.C., on 15 May.

MERLIN: Dave Lee saw an individual near Bryson City, N.C., on 11 April, and three were seen in Carteret County, N.C., on 25 and 26 April (fide John Fussell).

AMERICAN KESTREL: Perry Nugent and Steve Compton watched a pair carrying anoles into a woodpecker hole on Old Fort Road in I'On Swamp, northeast of Charleston, on 17 May. This is the same site where nesting was suspected last year.

SORA: One was rather early at Beaverdam Reservoir on 4 April, as seen by Robert Hader.

BLACK RAIL: John Fussell, Ricky Davis, and Mike Tove heard approximately 20 calling on the evening of 4 May at Cedar Island, N.C., where the largest known breeding population in the Carolinas exists.

BLACK-NECKED STILT: At North River marsh near Beaufort, John Fussell noted an early individual on 6 April, and the maximum spring count there was 14 on 11 May (Steve Graves). One at Sunset Beach, N.C., on 19 April (Kevin Mason, Philip Crutchfield) was rare for Brunswick County.

AMERICAN AVOCET: Noteworthy for Carteret County was an avocet at North River marsh on 16 April (John Fussell).

AMERICAN GOLDEN PLOVER: The only spring report received was of one in winter plumage seen by Allen Bryan at Bodie Island, N.C., on 18 April.

MARBLED GODWIT: Five seen flying over the surf at Bodie Island were of interest on 24 May, as noted by Bruce Lord and Herb Wilson.

UPLAND SANDPIPER: One was observed by Billy McCord and Nan Jenkins on 25 March approximately 2 miles W of Sycamore, Allendale County, S.C.

GREATER YELLOWLEGS: One was rather early near Townville, S.C., on 8 March (Harry LeGrand), and a good count of 25+ was made in eastern Durham County, N.C., on 31 March (Bill and Margaret Wagner).

WILLET: Rare inland were one seen by Philip Crutchfield near Fayetteville on 5 May and two observed by John Fussell at an impoundment just northwest of Catfish Lake in Jones County, N.C., on 15 May.

WILSON'S PHALAROPE: Three individuals were flushed from the ocean on a pelagic trip off Charleston on 3 May, as reported by Perry Nugent and party. Also noted on this trip were the "usual" pelagic phalaropes, 25 Northerns and 15 Reds.

NORTHERN PHALAROPE: Notable onshore sightings were six at a small pond on Bodie Island on 18 May (Claudia Wilds) and one at Brant Island at Fort Macon State Park on 24 May (John Fussell).

RED PHALAROPE: Dave Lee had good counts of 378 on 26 March, and 118 on 2 April, both off Oregon Inlet.

SHORT-BILLED DOWITCHER: One in breeding plumage was observed by Philip Crutchfield at Fayetteville on 22 April, and apparently the same bird was there on 29 April.

LONG-BILLED DOWITCHER: A flock of 18 was seen on 2 March by John Fussell at

Swanquarter at the site where they were previously reported in February. At Bodie Island were 20 on 17 April (Allen Bryan) and one on 18 May (Claudia Wilds).

SEMIPALMATED SANDPIPER: Rather early inland migrants were two birds seen by Philip Crutchfield at Fayetteville on 22 April.

WESTERN SANDPIPER: This "peep" is rare inland in spring; thus, of interest were one at Jordan Reservoir on 11 April (Mike Tove, Steve Graves) and four at Fayetteville on 26 April, with two there the following day (Philip Crutchfield).

LEAST SANDPIPER: A total of 12 at Jordan Reservoir on 19 March, as reported by Bill and Margaret Wagner, was a good number for that month.

WHITE-RUMPED SANDPIPER: Two were observed by Mike Tove at Jordan Reservoir on 28 April.

PECTORAL SANDPIPER: One seen by Harry LeGrand was early on 7 March near Pendleton, S.C., and LeGrand and Alan Avakian tallied 90 birds at several sites in the Clemson, S.C., area on 21 March.

DUNLIN: Philip Crutchfield noted three at Fayetteville on 17 March.

CURLEW SANDPIPER: The earliest spring record for the Carolinas, and the first for April, was an individual in winter plumage described in great detail by Ray Chandler et al. The sandpiper was seen at the Bodie Island lighthouse pond on 11 April.

STILT SANDPIPER: John Fussell observed an early migrant near Beaufort on 8 April.

JAEGERS: In the Atlantic Beach, N.C., area, John Fussell and others noted many jaegers migrating over the surf this spring, with the following totals: four on 18 April, two on 26 April, 11 on 29 April, four on 30 April, one on 9 May, 12 on 10 May, and two on 11 May. Fussell believed that most (especially those in April) were Pomarines, but none were positively identified. Reports of "identified" jaegers were a Pomarine at Pine Knoll Shores, N.C., on 15 March (Robert Hader), two Pomarines off Oregon Inlet on 26 March (Dave Lee), and a Parasitic off Cape Lookout on 6 May (Wayne Irvin).

GLAUCOUS GULL: A first-year immature was seen at a landfill at Newport, N.C., on 6 March by John Fussell and Allen Bryan; and another immature was seen by Perry Nugent at Huntington Beach State Park, S.C., on 26 April.

LESSER BLACK-BACKED GULL: Steve Graves and Mark Crotteau observed one on 10 March at the point at Cape Hatteras, where as many as six birds were noted during the winter.

HERRING GULL: An immature seen by Douglas McNair at Singletary Lake in Bladen County, N.C., was quite late on 24 May.

LAUGHING GULL: One was seen by Tom Haggerty at Roanoke Rapids, N.C., on 3 April.

COMMON TERN: Individuals were observed at Rocky Mount, N.C., on 14 April by Lou Fink and at Beaverdam Reservoir on 20 May by Bill and Margaret Wagner and Johnnie Payne.

CASPIAN TERN: Two each were noted at Forest Lake near Fayetteville on 23 April (Derb Carter) and at Lake Wheeler near Raleigh on 29 April (Steve Graves).

BLACK-BILLED CUCKOO: Noteworthy for the coast in spring were two heard calling in I'On Swamp near Charleston on 9 May by Perry Nugent, who heard another in the Charleston area on 11 May.

SHORT-EARED OWL: In the weedy fields and marshes in the lakebed of Jordan Reservoir, Maurice and Steve Graves saw 10 on 14 March, and Ricky Davis noted one on 6 April.

SAW-WHET OWL: At least three were heard calling at dawn from a dense stand of small pines in I'On Swamp near Charleston on 17 May by Steve Compton and Perry Nugent. The owls responded to taped calls but were not observed. The birds were undoubtedly very late migrants.

CHUCK-WILL'S-WIDOW: One was heard by members of the Charleston Natural History Society at Fairlawn Plantation northeast of Charleston on the early date of 22 March.

COMMON NIGHTHAWK: Douglas McNair observed two flocks of migrants totaling 30 birds at Derby, Richmond County, N.C., on 22 May.

CHIMNEY SWIFT: An early individual was seen by Steve Compton at Kiawah Island, S.C., on 14 March.

SCISSOR-TAILED FLYCATCHER: An excellent find was one seen near Derby, N.C., on 27 May by Douglas McNair and later in the day by Tom Howard.

ALDER FLYCATCHER: Rare was a singing bird along Alamance Creek in Alamance County, N.C., on 9 May, as reported by Allen Bryan.

EASTERN WOOD PEWEE: John Fussell et al. saw an early pewee in western Carteret County on 18 April.

BANK SWALLOW: An excellent concentration of swallows was 1800 at Beaverdam Reservoir on 20 May; 45% were Banks, as noted by Bill Wagner and others.

COMMON RAVEN: One was seen in the extreme upper piedmont at Sunset, Pickens County, S.C., on 3 May by Harry LeGrand.

BLACK-CAPPED CHICKADEE: A bird heard giving the two-note song of this species was noted by Herb Wilson on Round Bald, just east of Roan Mountain, N.C., on 5 June. The bird was not seen, and thus the record is suggestive of Black-capped Chickadee but not absolutely conclusive.

HOUSE WREN: Henry Rankin and Philip Crutchfield found a singing male at Fayetteville on 22 May. This city is outside the known breeding range.

SWAINSON'S THRUSH: One was at least 2 weeks early at Raleigh on 10 April, as seen by Gail Whitehurst.

GRAY-CHEEKED THRUSH: Very rare in spring for the immediate coast was an individual seen at Cape Lookout on 23 May by John Fussell and Robert Hader.

WATER PIPIT: A flock of 40 seen by Perry Nugent at the U.S. Vegetable Lab near Charleston was late on 7 May.

CEDAR WAXWING: Although scattered individuals of this species routinely linger in the Carolinas (away from the nesting grounds) until late May, a group of 60 was notable at Bay Tree Lake in Bladen County on 24 May (Douglas McNair).

PHILADELPHIA VIREO: Extremely rare for the coastal plain in spring was an individual seen by Steve Compton and Perry Nugent in I'On Swamp near Charleston on 17 May. The bird was yellowish below, olive above including the head, had a white eye stripe with no black border above it, and a black loral spot.

SWAINSON'S WARBLER: An individual was reported near Chapel Hill on 1 May by Mike Tove. The species was detected in this area last spring, and despite a lack of summer records to indicate breeding, the birds might be on territory.

WORM-EATING WARBLER: One noted by Mike Tove and Steve Graves was rather early on 11 April at Chapel Hill.

GOLDEN-WINGED WARBLER: Quite rare as far east as Fayetteville in spring were two males observed on 26 April by Philip Crutchfield and Russell Oates.

TENNESSEE WARBLER: An individual in winter plumage was studied carefully by Perry Nugent, Steve Compton, et al. at Fairlawn Plantation northeast of Charleston on 22 March. All marks, including white undertail coverts and trace of a wing bar, were observed. Douglas McNair noted singing birds near Rockingham, N.C., on 8 May and 21 May.

ORANGE-CROWNED WARBLER: One was seen by Ruth and Mosely Chesnutt in a yard in Fayetteville in early March.

NASHVILLE WARBLER: Gail Whitehurst observed a female on 22 May at Raleigh, where the species is very rare in spring.

NORTHERN PARULA: One was approximately a week early at McCain, Hoke County, N.C., on 29 March, as noted by Libba Watson.

YELLOW WARBLER: One was singing at White Lake, N.C., on 24 May (Douglas McNair). The species is not known to breed in this area, but it is not clear from the date of the sighting whether the bird was simply a late migrant or not.

MAGNOLIA WARBLER: Unusual for the coast in spring was a singing male seen by John Sneeden near Wilmington, N.C., on the late date of 30 May.

CERULEAN WARBLER: Wayne and Fran Irvin noted a male in their yard near Raleigh on 13 April.

BLACKBURNIAN WARBLER: Very rare were two at Cape Lookout on 23 May (John Fussell, Robert Hader) and another near Kitty Hawk, N.C., on 24 May (Herb Wilson, Bruce Lord).

YELLOW-THROATED WARBLER: One singing from waxmyrtles was unusual at Pea Island on 23 May, as noted by Herb Wilson and Bruce Lord.

PRAIRIE WARBLER: One was noteworthy for late winter in a Fayetteville yard on 13 March (Philip Crutchfield, Ruth and Mosely Chesnutt).

OVENBIRD: John Fussell observed a flightless young and an "upset" adult 1 mile E of Havelock, N.C., on 14 May. The species is present in summer and assumed to breed in this part of the state, but actual nesting evidence for the Croatan National Forest had been scarce or lacking.

LOUISIANA WATERTHRUSH: One was reported by John Fussell at Hunter's Creek in extreme western Carteret County on 17 April, a very rare record for the county, but the date gives no clues as to whether the bird was a breeding individual. Ricky Davis found two singing birds, apparently on territory, in southern Pender County, N.C., where the Black River joins the Cape Fear River, on 13 May.

WILSON'S WARBLER: One seen by Gardner Miller and Perry Nugent was rare and somewhat early on 18 April near Charleston. One of the surprisingly few spring records for Great Smoky Mountains National Park was a singing male observed by Mike Tove and Mark Eisdorfer on 13 May at Deep Creek, N.C.

CANADA WARBLER: The first record for Carteret County was a male seen at Cape Lookout on 23 May by John Fussell and Robert Hader.

NORTHERN ORIOLE: Eloise Potter noted an adult male in her yard near Zebulon, N.C., on 2 June; however, it was not seen on later dates and presumably was a non-breeder.

WESTERN TANAGER: An individual present in a Fayetteville yard in February was noted again, from 14 March to early April, by Philip Crutchfield and Ruth and Mosely Chesnutt.

ROSE-BREASTED GROSBEAK: Robert Ruiz reported a pair seen at Swannanoa, N.C., nearly daily from 30 April into June. The elevation of 2265 feet is approximately 1000 feet below the usual lower limit of breeding in the state. An early migrant was at Jordan Reservoir on 12 April (Sue Wilburn), and fairly late were birds on the Outer Banks of North Carolina on 23 May at Buxton and on 24 May at Kitty Hawk (Bruce Lord, Herb Wilson).

DICKCISSEL: Ricky Davis observed a singing male at Ebenezer Point in the Jordan

Reservoir area on 6 April, but it was not seen again by other birders later in April or May. However, another (or the same) was reported from the reservoir on 7 June by Eva McKenna and Ruth Fink. Paul Hamel noted a male on territory in northern Anderson County, S.C., on 14 June at the exact spot where a male was present in the summer of 1977.

EVENING GROSBEAK: One was rather rare at Bodie Island on 7 May, as reported by Allen Bryan.

HOUSE FINCH: A female lingered at Charles Lincoln's feeder in Morehead City, N.C., until 21 April. A female in Swannanoa, N.C., on 20 April and a male on 4 May were noteworthy (Betty Ruiz). Several adults were seen in two yards at Chapel Hill in late May and early June, though no evidence of nesting was reported (fide Bill Wagner).

COMMON REDPOLL: Very rare, as well as surprisingly late, was a female seen at a feeder in Monroe, N.C., by Anne Olsen from 11 to 15 March. Convincing details were provided.

GRASSHOPPER SPARROW: Philip Crutchfield and Kevin Mason heard a singing bird along River Road near Fayetteville on 18 May. This site is somewhat to the southeast of the known breeding range.

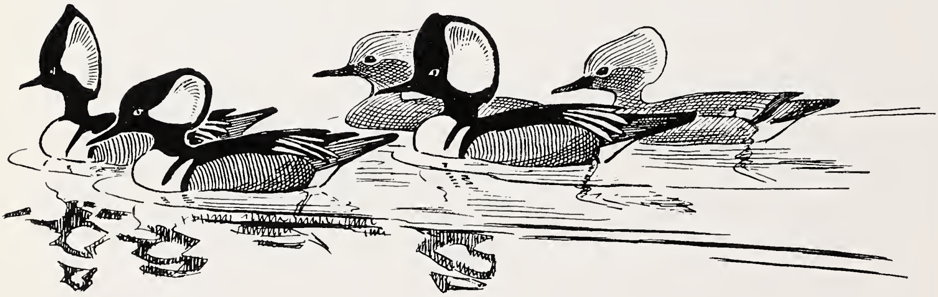
LE CONTE'S SPARROW: An individual was studied carefully by Harry LeGrand, Alan Avakian, and Jeff Beacham near Townville, S.C., on 8 March. Another bird, previously seen during the winter, was noted again near Pendleton, S.C., on 21 March by Avakian and LeGrand.

BACHMAN'S SPARROW: Jay Carter reported that singing males were present this spring on the Sandhills Game Land in northeastern Richmond County, in the western part of Fort Bragg, and at two sites in southern Moore County, all in the North Carolina Sandhills.

WHITE-CROWNED SPARROW: Fairly late in departing were birds at Bulls Island, S.C., on 9 May (Steve Compton, Gardner Miller), and on 10 May at Harkers Island, N.C. (Skip Prange) and at Chapel Hill (Steve Graves).

LINCOLN'S SPARROW: One seen near Pendleton on 7 March by Harry LeGrand was likely a wintering individual, whereas Charles Blake banded one, probably a migrant, near Hillsborough, N.C., on 13 April.

LAPLAND LONGSPUR: Douglas McNair closely watched a female at the Rockingham-Hamlet airfield, N.C., on 9 May. The previous late date for this species in the Carolinas was 20 April.



BOOK REVIEWS

THE AUDUBON SOCIETY FIELD GUIDE TO NORTH AMERICAN BUTTERFLIES

Robert Michael Pyle. 1981. Knopf. $11.95

A bird-watcher who strays into the world of butterflies finds much that is familiar. Birds and butterflies are similar in size, color, number of species, and distribution. Both groups are active mostly by day, and both have fascinating, though different, life histories. Then too, the lives of birds and butterflies often converge; birds as predators, butterflies as their prey.

The prey relationship has affected profoundly the way butterflies look. Many species have evolved on the outer edges of their wings colorful eye-like spots that seem to misdirect the stab of a hungry bird. Other species have hair-like tails at the trailing edge of their hind wings. These confuse birds: Which end is the antennaed head, where one blow would bring down the victim, and which end the expendable tail?

Some butterflies, in our area notably the Pipevine Swallowtail and the Monarch, taste bad and cause illness when ingested. The poison is held over in the adults from the toxic plants on which they fed as larvae. These butterflies have bold colors and markings. Birds quickly learn to recognize the butterflies they don't like, and to avoid them. But still others, notably the Red Spotted Purple and the Viceroy, mimic the bad-tasting butterflies in appearance. These are, so to speak, tidbits in wolf's clothing, benefactors of false and misleading advertising.

Despite the rich variety of butterflies, most bird-watchers seem to hesitate to commit themselves with the same passion with which they pursue birds. Perhaps the idea still persists that to study butterflies one must possess and be willing to use such nasty objects as nets, killing jars, and pins. The butterly volume in the Peterson Field Guide Series did nothing to dispel this notion. By Alexander Klotz, it is a fine book despite the slant of both text and illustrations toward identifying the collected specimen. It was published about 30 years ago. Butterfly nomenclature has undergone many a revision since them. New species have been described. Many new facts have been discovered about life histories. And the old guide limited its coverage to North America east of the Rockies. Don't get me wrong, I don't intend to dispose of my copy. I'll keep it on hand and use it often.

Fortunately, the new Audubon Society field guide triumphantly overcomes the shortcomings of the Klotz guide. An astonishing 1086 full-color photographs cover about 600 species, with some 100 others treated in thumbnail drawings and discussions. All of North America north of Mexico falls under the scope of this book. The tropical strays that reach south Florida and Texas lead one's dreams toward Central America the West Indies.

This is a marvelous natural history book, in my opinion the best of the Audubon Society Field Guide Series. We are inspired to identify butterflies in the field and to collect photographs rather than bodies. A marvelous book, but not a masterpiece. A masterpiece would not have so many flash pictures, which give an out-of-this-world look to the butterflies. A good (bad?) example is the Eastern Tailed Blue on the cover. It has the look of metal foil—an effect you'll never see in natural light. That Desert Orangetip, so fetchingly posed on a desert wildflower, has sunk to the petals as though its legs won't support it. I strongly suspect a poison jar or a pinch, both sure to slow a butterfly too frisky for the photographer's convenience. What of the Northwest Alpine? If a better photograph couldn't be found, the artist should have been summoned. But these are isolated flaws. Probably it will be a long time before a better butterfly guide comes along.—JAY SHULER

BIRDS OF SOUTHERN CALIFORNIA/STATUS AND DISTRIBUTION

Kimball Garrett and John Dunn. 1981. Los Angeles Audubon Society, 7377 Santa Monica Blvd., Los Angeles, Calif. 90046. Line drawings by Lee Jones. Index. 408 p. Hardcover, $18.95 plus $1.25 for postage and handling.

This is an attractive and informative book—a *must* for any bird student who lives in southern California, visits or plans to visit there, or simply wants to be well informed about the bird life of the West Coast. Do not be misled by Herbert Clarke's gorgeous jacket photo of a Western Bluebird or by Lee Jones's generally excellent line drawings scattered through the text: *Birds of Southern California* was written for people who take their bird-watching seriously. (Yes, that's our Lee Jones, formerly of Charlotte and North Carolina State University.)

A careful reading of the front matter is essential to proper interpretation of the bar graphs, species accounts, and range maps for breeding birds. The introduction includes a long list of abbreviations used in the text and a helpful discussion of the geographical scope of the work. A section on taxonomy and nomenclature explains the authors' choice of common names and species order. (Basically, Garrett and Dunn rejected the out-of-date 1957 A.O.U. *Check-list* and anticipated, as best they could, the forthcoming edition, which probably will not be available before 1983.) Other sections treat seasonal bird movements, population trends, and districts and habitats. The four districts (desert, coastal, Colorado River, and Salton Sea) are illustrated on endpaper maps of southern California as well as on aerial photographs of the region. Bar graphs offer a quick impression of relative abundance of each species throughout the year in the various districts and habitats. In some cases (e.g. American White Pelican) each district has a separate bar.

Species accounts number more than 500 and vary in length from a few lines to a page or more. The boldface opening paragraph is a brief, telegraphic statement of seasonal status and distribution. Subsequent paragraphs, written in complete sentences, give full details including specific dates and places for rare occurrences. The basic species list is followed by introduced and exotic species, a supplemental list (species that do not yet meet the criteria for acceptance on the main list), and additional species recorded from northern California.

The breeding range maps at the back of the book are very helpful, but I wish the illustrator had put the hatching lines farther apart. Even with reading glasses, I have difficulty determining the directions of slope on maps treating two races or two species. (For easy reference, I have colored one set of lines in each dual-purpose map.)

Birds of Southern California offers authoritative treatment of local seasonal distribution, migration dates, nesting ranges, habitat relationships, and population trends. With this book in hand, the Carolinian who visits southern California should return home not only with many new species on his life list but also with an understanding of habitats quite different from those of the Eastern United States.

Los Angeles Audubon Society is to be congratulated for publishing an outstanding book that defies the conventional wisdom of trade and university presses, which is that state and regional bird books will not sell unless they have lots of color pictures and instructions for identifying birds. In this day of excellent and inexpensive bird guides, authors of state and regional works should be able to omit sections on field identification without significant loss of sales. Absence of color plates is another matter. Although this will certainly discourage some prospective buyers, the strong text and wide interest in the bird life of southern California should make the small first printing of the Garrett and Dunn book sell out quickly.—EFP

THE AUDUBON SOCIETY HANDBOOK FOR BIRDERS

Stephen W. Kress. 1981. Charles Scribner's Sons, New York. Illus. Three appendices, Index. 322 p. Hardcover, $17.95.

Every new bird-watcher reaches a critical stage in the development of his interests and skills when he first realizes that he has learned to identify all the species he can readily find in the vicinity of his own home. Some people solve the problem by traveling greater and greater distances to add birds to their life lists, North American lists, state lists, year lists, or whatever other lists they may choose to keep. These people become known as listers. Others solve the problem by learning more and more about the birds close to home. These people become known as bird students. The purpose of Kress's *Handbook* is to help the inexperienced bird student become familiar with the fundamental techniques, field equipment, and publications used by professional and nonprofessional ornithologists.

The chapter headings clearly define the scope of the book: field trip techniques, binoculars and spotting scopes, observing birds, photographing and recording birds, educational programs, research programs welcoming amateurs, periodicals and organizations, and building a bird-watcher's library. The text is generously illustrated with black-and-white photographs and with drawings by Anne Senechal Faust. On the whole the author presents basic information in a straightforward manner with a minimum of technical terms and a blessed absence of jargon.

As will be true of any book covering a broad range of topics in some detail, there are a few lapses. Two I happened to notice because of my personal involvement. *Birds of the Carolinas* is listed only under the North Carolina heading, an understandable oversight because few bird books cover two states. In the captions for the illustrations of birds dusting and anting, only the control of ectoparasites is mentioned as a possible reason for these behaviors. Sunning is neither illustrated nor mentioned in the text.

On page 40 Kress cautions readers against "assigning human motives and values to bird behavior." Isn't that what he and others are doing when they assume birds take extraordinary measures to rid themselves of ticks, lice, and mites even though there is almost no supporting data based on the behavior of wild birds? I assume Kress took his captions from the general literature without bothering to read *Wilson Bulletin* 69:78-90, *Auk* 87:692-713, *Chat* 37:91-102, or *Auk* 91:537-563. These papers offer a considerable body of data demonstrating a correlation between the peak of postnuptial and postjuvenal molts and the peak of such grooming behaviors as anting, sunning, dusting, and—to a lesser extent—water-bathing.

Of course Kress's book is not supposed to be an encyclopedia of bird behavior, merely an introduction. My criticisms should not detract from the many positive aspects of the work. I particularly like the emphasis on keeping adequate records. How often does the beginning bird-watcher see something unusual and fail to write it down? Years later, when he finally realizes the full significance of the observation, he cannot recall even the date much less weather conditions and other pertinent details. Altogether Kress offers an abundance of sound advice and useful information that will get bird students off to a good start.—EFP

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OUR COVER—David Lee photographed a familiar winter scene in coastal Carolina—Double-crested Cormorants silhouetted against shimmering water.

LARK SPARROWS BREED IN RICHMOND COUNTY, N.C.

DOUGLAS BRANCH McNAIR

Abstract.—Lark Sparrows fledged young from one nest in late May 1981 near Derby, Richmond County, for the first modern North Carolina breeding record. This represents extralimital breeding approximately 500 km from the nearest presently known nesting localities. The successful nest and all but one of the incomplete nests were built on the ground under unappressed tufts of needles or boughs of seedling Longleaf Pines in a field planted with these pines; this field had bare sandy areas and low herbaceous plants. The total population of Lark Sparrows was three to four pairs, and the most frequently observed activity was singing by males. Courtship, nest construction, and fledging of young were seen. The possible origin of this population in the North Carolina Sandhills and its future prospects are discussed.

Lark Sparrows (*Chondestes grammacus*) are rare to uncommon and erratic breeding birds in the most easterly portions of their range (Todd 1940, Mengel 1965, Larner 1979, Bierly 1980, and Peterson 1980), and a general decrease has recently occurred in many states (Peterson 1980 and many reports in *American Birds*). They have nested as close to North Carolina as northwestern Virginia (Larner 1979), eastern Tennessee (Bierly 1980), and in the western parts of the Tennessee Valley and the Black Belt of Alabama (Imhof 1976). The species apparently no longer breeds in the northeasternmost portion of its breeding range (Peterson 1980), and the last known pairs nested in Virginia and eastern Tennessee in 1949 and 1972 (Larner 1979, Hall 1972).

There is but one previous breeding record for North Carolina. The A.O.U. *Check-list* (1957) and Baepler (1968) state the Lark Sparrow breeds in western and central North Carolina (Cranberry, rarely to Raleigh), which is decidedly misleading. I have been unable to find a published record of Lark Sparrows breeding at Cranberry, which is in central Avery County. *Birds of North Carolina* (Pearson et al. 1942) lists but one breeding record, that of a deserted nest with four eggs found by H.H. Brimley at Raleigh on 24 July 1890. Thus a recent nesting record from the North Carolina Sandhills is especially noteworthy. Three to four pairs were present near Derby, Richmond County, and one pair fledged young in late May of 1981.

METHODS

Information obtained represents data gathered over 17 hours from late May to early July. Behavioral activities were timed by a digital watch and stopwatch. All birds were unmarked. They were sexed and aged by behavior or plumage.

HABITAT DESCRIPTIONS

I discovered Lark Sparrows the latter half of May 1981 at two localities near Derby, Richmond County, N.C. The first site is an abandoned 5.6-ha pasture 5 km SE of Derby on SR 1003 (Derby Road). Pineweed (*Hypericum gentianoides*), Wireweed (*Stipulicida setacea*), and *Polypremum procumbens* are the most numerous herbaceous plants. There are scattered clumps of *Haplopappus divaricatus*, Lovegrass (*Eragrostis* sp.), and Plaintain (*Plantago* sp.). Lupine (*Lupinus diffusus*) is a locally important procumbent species. Small (2 to 4 m) Longleaf Pines (*Pinus palustris*) and Broomsedge (*Andropogon* sp.) are in a corner of the pasture. A small garden is also present. Other representative plant species are Rabbit Tobacco (*Gnaphalium obtusifolium*), Thistle (*Carduus repandus*), *Eupatorium capillifolium*, and *Panicum* sp. The pasture is a minimum of 3 years old, with pines that are 12 to 14 years old in one section. There are

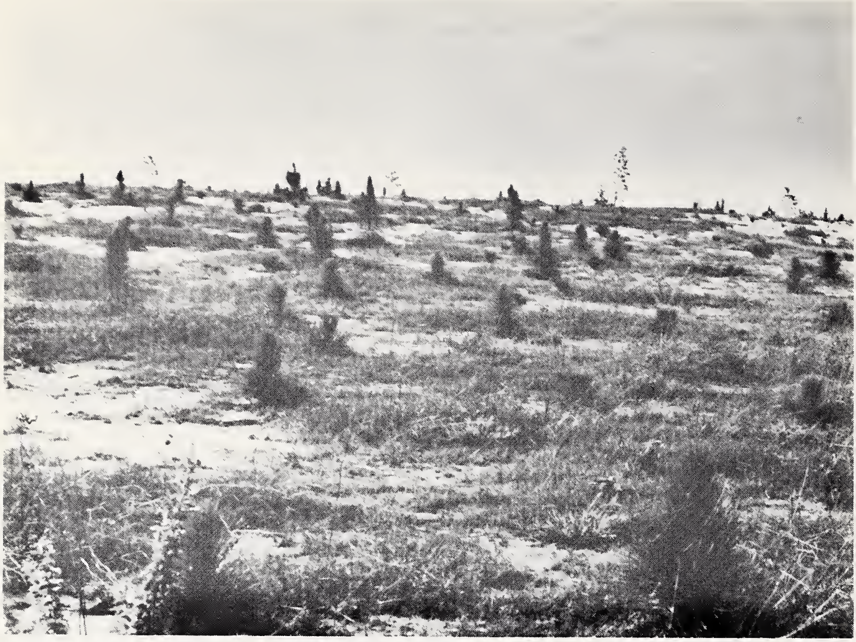


Fig. 1. Lark Sparrows bred successfully in this field of young pines near Derby, Richmond County, N.C., in 1981. The Longleaf Pines shown above range in height from 25 to 50 cm. (Photo by Tom Howard)

many bare sandy areas. The pasture is almost encircled by a sandy road and is bordered by Derby Road, two homes, a windbreak row of 12-m Loblolly Pines (*P. taeda*), second-growth pine-oak forest, a young-pine pasture, and hay, grain, and vegetable fields.

The second locality is an 8-ha barren field planted in rows with short (20 cm to 1.15 m) Longleaf Pines (Fig. 1) 1 km closer to Derby than the pasture, and also on the Derby Road. *P. procumbens, Heterotheca subaxillaris*, and *H. divaricatus* are the most numerous herbaceous plants, and Rabbit Tobacco is fairly common. The field is 5 to 8 years old, and sandy barren areas are characteristic. There is a slope with a difference of 1.5 m in relief. Adjacent areas are a 11- to 13-m Longleaf Pine woodlot, oak shrub 2.5 to 6.1 m high, a hedge bordering a hay field, scattered deciduous saplings, and Derby Road separating the nesting site from a large field.

There is another barren field planted in rows with short Longleaf Pines on another side of the Longleaf Pine woodlot and oak shrub. This field is similar to the 8-ha field, but is lower and wetter than surrounding habitats. Dwarf Morning Glory (*Bonamia patens*) is widespread and Lupine is locally abundant. Henceforth, this field shall be called the back field and the 8-ha field, the major field.

Key breeding species at one or both localities include the following. Bobwhite (*Colinus virginianus*) and Mourning Dove (*Zenaida macroura*) are numerous. An Eastern Meadowlark (*Sturnella magna*) nest was found in both the major field and pasture. Horned Lark (*Eremophila alpestris*) and Common Nighthawk (*Chrodeiles minor*) apparently nested in the field across the road from the major field. Loggerhead

Shrike (*Lanius ludovicianus*) nested in the area and fed at both sites. Field Sparrow (*Spizella pusilla*) and Blue Grosbeak (*Guiraca caerulea*) were important species of shrub and hedge.

POPULATION AND PERIOD OF OCCURRENCE

The total number of Lark Sparrows present was 11 or 12, 7 or 8 adults and 4 juveniles. One pair was seen in the pasture on 18 May, and the male was singing on 22 May; none were seen at the pasture subsequently. Three singing males were on territory in and near the major field from 22 May to early July. Two pairs were observed on several occasions, and 7 or 8 adults were seen on 3 June, foraging in one flock in the major field. This total probably included the pair from the pasture. Thus, at least three pairs, possibly four, were present near Derby. Known females were last seen on 19 June (J.M. Lynch, pers. comm.), accompanied by singing males. Three juveniles with adults were seen on this date, and a fourth juvenile was also present (see below). The successful nesting female's plumage was very worn by mid-June. Several adults had dispersed 3 to 5 km by early July, and no Lark Sparrows were seen afterwards.

PROOF OF BREEDING

On 22 May in the major field, I noticed an anxious male carrying a caterpillar. While searching nearby, I flushed a female off a nest with five young. The nestlings' eyes were wide open; the remiges were starting to emerge from their sheaths, and the rectrices were short. The nest was collected later and is North Carolina State Museum No. 8181.

Jay Carter and Tom Howard accompanied me to the site on 27 May, and we found an empty nest. Howard and I returned the next day and found the male parent bringing small grasshoppers to one very recently fledged bird in the pine woodlot. The juvenile was hiding under vegetation on the ground, and we flushed it. Howard photographed the young bird before I caught it. The juvenile was an undistinguished brownish color and deeply streaked on both under- and upperparts; the tail was but one-half the adult length, though already showing white on the outer rectrices (Fig. 2). Last seen on 23 June with the male in the pine woodlot and major field, the juvenile looked as depicted in popular field guides.

I concluded the juvenile fledged from the discovered nest. Nestling Lark Sparrows are able to leave the nest the sixth day after hatching and normally do so at 9 or 10 days of age, at which time they can fly (Baepler 1968). Baepler's description of juvenile plumage on the fifth day of the nestling period is most similar to the juveniles I discovered in the nest on 22 May. Thus the juvenile photographed on 27 May was probably 10 or 11 days old. It was observed flying as far as 5 m and as high as 2 m. This closely agrees with Baepler's statement that juveniles first fly at 9 to 10 days. Lark Sparrows begin incubation after the last egg is laid for normal early clutches, though incubation may begin with laying of the first or second egg on renesting attempts, according to Baepler. It is reasonable to assume this nest represents a normal clutch because of the early date. Assuming the juveniles were 5 days old when discovered, represent a clutch of five, and have an incubation period of 12 days, the first egg was laid on 3 May with a probable error of ± 2 days. No other active nests were discovered, and I believe this was the only successful nest in the area. Lynch visited this site on 19 June and found three juveniles begging food from adults. These are almost certainly three of the four other juveniles from the same nest.

NEST-SITE SELECTION AND NEST CONSTRUCTION

The complete nest (Fig. 3) was a depression in the sand, partly lined with grasses and stems of herbs and situated at the base of a seedling pine 25 cm high by 48 cm wide. The nest diameter was 11 cm and its depth was 6.5 cm; the unlined bottom was 6 cm in diameter. Facing east, the nest was on a 3° slope. The pine needles were not appressed to

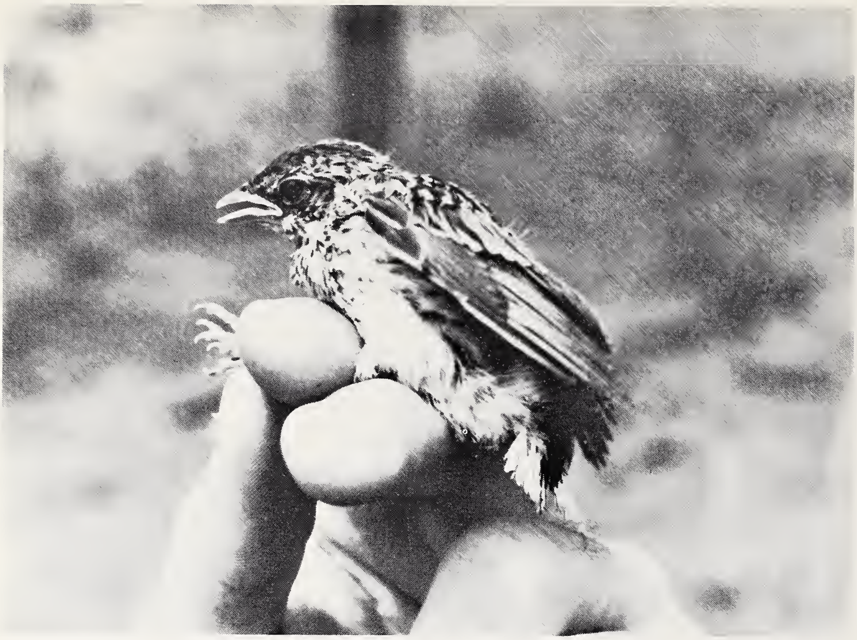


Fig. 2. The juvenile Lark Sparrow shown above fledged from a nest in Richmond County, N.C., in late May 1981. Note the white on the tail feathers. (Photo by Tom Howard)

the ground and provided a canopy for the nest, which could be viewed without disturbing any vegetation. The immediate area surrounding the pine was bare.

Five incomplete nests, all in the major field, were discovered on days subsequent to 22 May. All five and the complete nest shared many characteristics. Each nest scrape was excavated at the base of a pine in sandy soil on a slope of 3° or less and faced an east to south direction. Nest scrapes ranged from 11 to 12.5 cm in diameter and 4 to 7.5 cm in depth. Only the successful nest was completed. Three other nests were incomplete, in varying stages of completion with construction begun on the side away from the pine; two had no lining. Nest lining consisted of grasses and stems of herbaceous plants. The nest scrapes varied from very fresh to old when discovered from 3 to 15 June. The height of pines chosen ranged from 25 to 50 cm with a mean of 39.8 cm and standard deviation of 12 cm. The spread of seedling pines ranged from 48 to 73 cm with a mean of 62.3 cm and standard deviation of 8.5 cm. A systematic analysis of the pines selected for nest sites with those not selected revealed what I intuitively expected: There were no significant differences in size. I also noted whether or not tufts of pine needles or boughs were appressed to the ground. All six pines chosen by Lark Sparrows were not appressed, which is significant. During 9 hours of searching for nests, I obtained no evidence, behavioral or otherwise, that Lark Sparrows attempted to nest outside the major field, though earlier discovery may have produced more illuminating results. I believe the evidence is clear. Lark Sparrows preferred seedling pines with unappressed tufts of needles or boughs for nest sites. Nest sites that provide cover are preferred by the Lark Sparrow throughout its range, particularly in the East where it nests on the ground

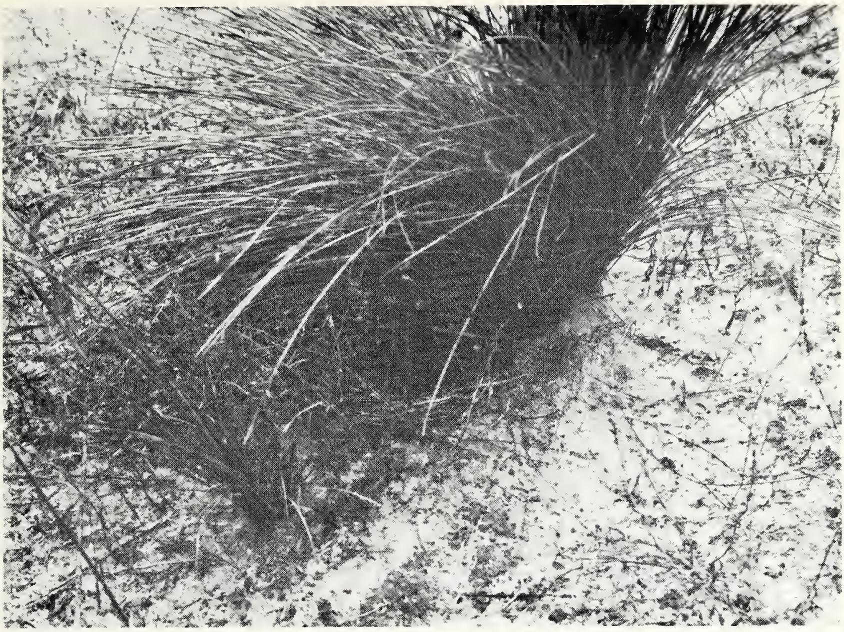


Fig. 3. The successful Lark Sparrow nest in Richmond County, N.C., was built in a scrape in sandy soil at the base of a young Longleaf Pine and partially lined with grasses and stems of herbaceous plants. The overhanging pine needles help shade and conceal the nest. (Photo by Tom Howard)

more frequently than it does in the West (Roberts 1936, Sutton 1967, Baepler 1968, Newman 1970, Walcheck 1970). This preference for cover is, in part, to protect the eggs and nestlings from becoming overheated. Walcheck found Lark Sparrows preferred nesting on the ground under Big Sagebrush (*Artemisia tridentata*) rather than under Greasewood (*Sarcobatus vermiculatus*). The height and width of the canopy of both species were similar as well as their frequency, but Big Sagebrush had many more overhanging branches and the soil was more granular underneath because the life form of the vegetation caught rainfall better and prevented the soil from becoming hardpanned as it did under Greasewood. Lark Sparrows seemingly have shown no especial preference for coniferous or deciduous growth in other areas, but partly select nest sites based on life form characteristics.

While watching a pair courting on 18 May, I found a partially lined nest at the base of a Lupine in the higher part of the pasture. The nest faced S-SW and the plant's stems and leaves provided a canopy. This was the only other incomplete nest discovered.

More critical than the vegetation, however, is the soil, which must be sandy or otherwise poor (Graber and Graber 1963, Baepler 1968 and others). The Derby locality satisfies this requirement as well as that of having sections of slightly elevated land within expanses of otherwise similar habitat—another preference Roberts noted in Lark Sparrow nest-site selection. The back field is lower (and wetter) than surrounding habitats and thus apparently unsuitable for nesting Lark Sparrows.

The six nests in the major field, except for being placed in the higher areas, seemed to be randomly distributed. It is possible that random distribution of nests in a homogenous habitat is the best defense against predation, as the nests themselves are poorly concealed. A snake was the probable agent in accounting for less than the complete brood fledging successfully, as the nest was undisturbed. Newman (1970) found nesting success lower in ground nests than in those above ground, and snakes were implicated as a major predator.

Both males and females help in nest-site selection, the males usually dropping stems at prospective sites and the female building the nest with these and ones she has also collected (Baepler 1968), but there is no information in the literature on how many scrapes may be excavated by one pair before one nest is completed. There were but two probable pairs, absolutely no more than three, at the major field where the six scrapes were excavated.

BREEDING BEHAVIOR

Courtship.—Courtship was observed only on 18 May in the barest area of the pasture, and all courtship activity occurred within 36 m of the incomplete nest except for flight to the nearby row of Loblolly Pines. The male gave the "Turkey-cock" display (Barlow 1960) on the ground before the female at 1830. For the next 45 minutes the male alternated bouts of singing with other activities such as presenting stems to the female, searching for suitable stems, and examining potential nest sites. Singing occupied about 80% of the time, and the normal song was delivered from many perches, both on the ground and above the ground. The male placed stems on the ground at several sites, usually Plantago and Lupine, including the site of the incomplete nest.

Song.—Singing was the dominant activity of male Lark Sparrows and was frequent at all daytime hours. It may have been frequent at night (Roberts 1936, Baepler 1968), but I did not visit then. Estimated duration of singing by an individual male ranged from 10 to 95% of time under observation, often timed continuously for 1 hour. The low of 10% was recorded for the male tending the juvenile on 28 May. There was no apparent correlation of singing time with weather.

The normal song usually consisted of one unbroken succession of 5 to 8 mellifluous trills, with some churring notes interspersed. Each song lasted an average of 3 seconds with a range of 2 to 5 seconds. I timed many periods between the beginning of one song and the beginning of the next; representative means of consecutive songs with no long pauses were 9.8 to 13.5 seconds. Once on 28 May, the male parent, while tending the juvenile, sang an extended song atop a 1-m pine in the major field. The same male also sang the normal song sotto voce in the major field on this occasion. Both are rare songs presumably maintained the male-female pair-bond during a time of stress, i.e. when both were responsible for the very recently fledged young. Other vocalizations heard were contact, alarm, distress, and feeding notes.

Lark Sparrows preferred singing from elevated perches in low plants in fields and in shrubs and pines. Ground singing was infrequent and mostly related to courtship. The flight-song was never observed. Baepler (1968) says this may be frequent whereas Roberts (1936) says it is rare. The relative frequency may be related to both species density and availability of elevated perches. The low density and many adequate perches at Derby may explain the lack of flight-song observations.

Lark Sparrows usually selected singing perches in the upper half of the crown and near the trunk or main axis of leafy trees or shrubs. Birds often sang at or near the top of bare shrubs. Males sang from many perches within their respective territories; however, each singing male had several favorite perches, and one had as many as eight. This is contrary to Baepler (1968) and Roberts (1936), who state that they do not have favorite perches. Some individual males showed a preference for a particular type of singing perch (i.e. dead oak shrub, toward top of large Longleaf Pine), but others showed no preference for one type.

Foraging.—All foraging occurred on the ground. Both male and female fed the young. Caterpillars (N = 2) were fed to nestlings; grasshoppers (N = 5) were fed to the juvenile. Other food items included seeds eaten by adults. Females pecked quicker and were warier than males; foraging females sometimes engaged in neck scanning and mouse runs. Todd (1940) noted similar female feeding behavior during the breeding season in Pennsylvania.

Other Behavior.—When flushed from fields or shrubs, Lark Sparrows, including singing birds, preferred to fly to nearby large pines at both localities. Birds flushed to large pines almost always landed in the upper half of the crown, and if flushed again, preferred to stay in pines. Lark Sparrows often entered large pines—when flushed, flying to singing perches, resting, or carrying food to the juvenile—by approaching at a height equal to the eventual chosen perch. Maintenance activities, preening and scratching, usually occurred between singing bouts during rest periods. Longest continual preening observed was 20 seconds.

POSSIBLE ORIGIN OF LOCAL BIRDS

The Derby nesting locality is 480 to 650 km from the nearest presently known breeding sites in Alabama, Tennessee, and Kentucky. Although the Lark Sparrow crossed the Allegheny Divide into the Northeastern States (Todd 1940), it has failed to advance from Alabama eastwards, which suggests the Northeast as the origin of the Derby birds. It is conjecture whether the birds found the Derby site when migrating during spring toward the Northeastern breeding grounds or if these birds wintered near Derby and decided to nest there instead of migrating. Lark Sparrows have been reported wintering sparingly on the coast of the Southeastern States (Baepler 1968, Potter et al. 1980), and are decidedly scarce inland. The last Lark Sparrow in Derby was seen in early July 1981 and despite intensive search since, none have been found. Whatever their origin, three to four pairs at one place in North Carolina is remarkable.

FUTURE PROSPECTS FOR LOCAL BREEDING POPULATION

Six incomplete nests and abandonment of the pasture by one pair suggest a lack of behavioral synchrony within breeding pairs of a species nesting at the very edge of its breeding range. Newman (1970) found 16.1% of Lark Sparrow nests abandoned for reasons not caused by predation—a much lower percentage than at the Derby site—but published no information on why or how this occurred. I could not determine how many pairs were responsible for the nest starts in the major field though a second pair was almost certainly involved. A very fresh scrape was found on 3 June, at which time the successful nesting pair was still feeding young, and certain second broods are unknown (Baepler 1968). The other singing male in the major field shifted most of its singing from the field to oak shrubs, which may have been a partial response to breeding failure.

Suitable habitat and life-form characteristics of the vegetation may be the most important factors for establishment of a stable breeding population. It is not surprising that the poor sandy soils of the North Carolina Sandhills were selected. Scattered tracts of similar habitat exist at the Fort Bragg Military Reservation (Jay Carter and Tom Howard, pers. comm.). Prospects at the present site are not good, however, because it is for sale. Nevertheless, Carter saw an adult at this site in May 1980, and Lark Sparrows were probably breeding that year. This suggests that the population may be trying to establish itself. However, Lark Sparrows have declined or retreated from breeding areas nearest the Carolinas, which provides scant hope the Derby population will persevere. Nevertheless, given the scarce coverage of potential Lark Sparrow habitats in the Carolinas and the especially favorable environment of the Carolina Sandhills, the presence of three or four pairs in 1981 at Derby provides some hope that this species may become a rare but regular breeder in the Carolinas.

ACKNOWLEDGMENTS

I thank Tom Howard for identification of many plant species, his excellent photos, and critical comments, and J. Merrill Lynch for permission to include his unpublished field notes.

LITERATURE CITED

Baepler, D.H. 1968. Pages 886-902 *in* A.C. Bent, Life Histories of North American Cardinals, Grosbeaks, Buntings, Towhees, Finches, Sparrows and Allies, U.S. Natl. Mus. Bull. 237.

Barlow, J.C. 1960. Courtship feeding in the Lark Sparrow. Bull. Kansas Ornithol. Soc. 11:2.

Bierly, M.L. 1980. Bird Finding in Tennessee. Published by author, Nashville, Tenn.

Forbush, E.H. 1929. Birds of Massachusetts and Other New England States. vol. 3. Mass. Dept. Agric., Boston.

Graber, R.R., and J.W. Graber. 1963. A comparative study of bird populations in Illinois, 1906-1909 and 1956-1958. Ill. Nat. Hist. Surv. Bull. vol. 28, article 3.

Hall, G.A. 1972. Appalachian region. Am. Birds 26(4):760-763.

Imhof, T.A. 1976. Alabama Birds. Second edition. Univ. Ala. Press.

Larner, Y.R. 1979. Virginia's Birdlife/ An Annotated Checklist. Va. Soc. Ornith.

Mengel, R.M. 1965. The Birds of Kentucky. A.O.U. Ornithol. Monograph No. 3.

Newman, G.A. 1970. Cowbird parasitism and nesting success of Lark Sparrows in southern Oklahoma. Wilson Bull. 82:304-309.

Pearson, T.G., C.S. Brimley, and H.H. Brimley. 1942. Birds of North Carolina. N.C. Dept. Agri., Raleigh.

Peterson, R.T. 1980. A Field Guide to the Birds. Houghton Mifflin Company, Boston.

Potter, E.F., J.F. Parnell, and R.P. Teulings. 1980. Birds of the Carolinas. Univ. N.C. Press, Chapel Hill.

Radford, A.D., H.E. Ahles, and C.R. Bell. 1968. Manual of the Vascular Flora of the Carolinas. Univ. N.C. Press, Chapel Hill.

Roberts, T.S. 1936. The Birds of Minnesota. vol. 2. Univ. Minn. Mus. Nat. History, Minneapolis.

Sutton, G.M. 1967. Oklahoma Birds. Univ. Okla. Press, Norman.

Todd, W.E.C. 1940. Birds of Western Pennsylvania. Univ. Pittsburgh Press.

Walcheck, K.C. 1970. Nesting bird ecology of four plant communities in the Missouri River breaks, Montana. Wilson Bull. 82:370-382.

Department of Zoology, Clemson University, Clemson, S.C. 29631, 28 October 1981.

PROBABLE BREWSTER'S WARBLER X GOLDEN-WINGED WARBLER MATING IN NORTH CAROLINA

MICHAEL TOVE

On 23 April 1979, I caught and banded an adult male Brewster's Warbler (*Vermivora chrysoptera* X *pinus*) near Cullowhee, Jackson County, N.C. The bird (Fig. 1) was the white-breasted variety as described by Pough (1946) and Parkes (1951). According to these authors, this plumage represents a "Backcross Brewster's Warbler Genotype," which is described as the product of a Brewster's Warbler X Golden-winged Warbler mating.

After release, the warbler began to establish a territory, the boundaries of which shifted considerably. After about 3 days, a territory over 400 m long and 100 m wide was claimed. This territory contained three distinct areas, each delimited by a natural or man-made boundary (Fig. 2). Area 1 included Sectors J,K, and L. Area 2 included Sectors, A,C,E, and G. Area 3 included Sectors B,D,F,H, and I. Each of these areas was roughly equivalent to an average territory of either parental species (see Ficken and Ficken 1968a).

During the first three mornings after release, the bird was observed singing in all sectors. His song resembled that of a Golden-winged Warbler (*V. chrysoptera*) except for differences in the introductory syllable (see Figs. 3 and 4). Throughout the next 4 weeks, singing activity was concentrated in Sectors C, E, and G of Area 2, and Sectors B, D, and F of Area 3.

On 12 May, the bird was observed displaying with an adult female Golden-winged Warbler in Sector L. The displays included a variety of vocalizations, tail fanning, and wing quivering by both individuals. Throughout most of the display, the birds remained

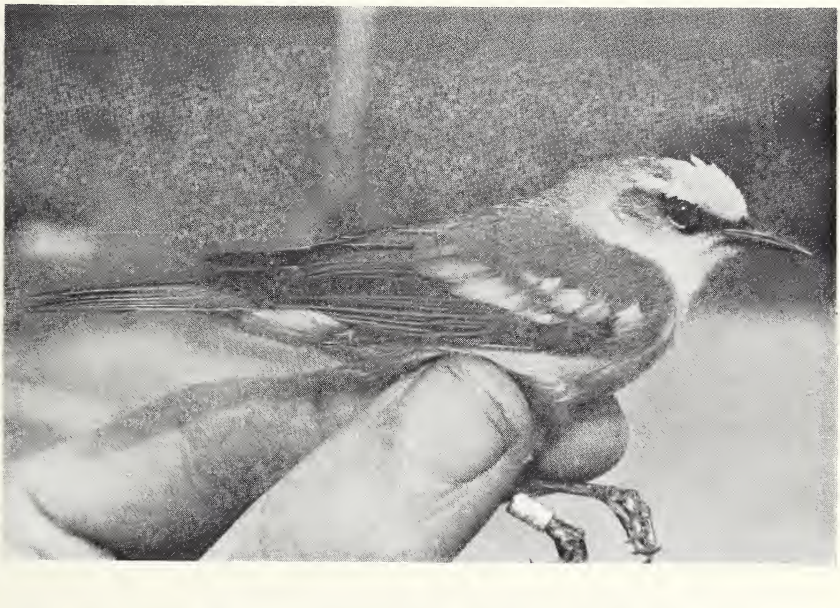
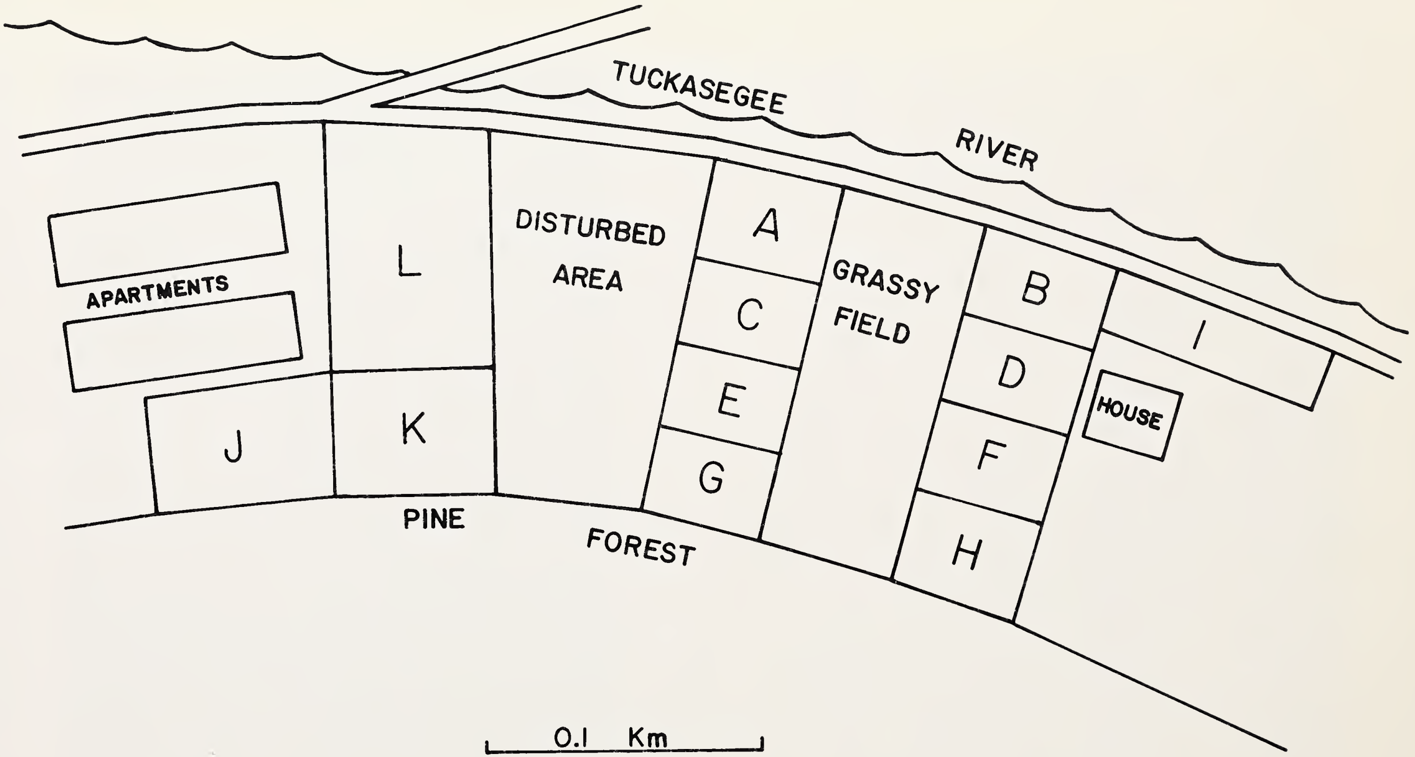


Fig. 1. Adult male Brewster's Warbler caught and banded 23 April 1970 near Cullowhee, Jackson County, N.C. (Photo by M. Tove)


TUCKASEGEE
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0.1 Km

Fig. 2. Map of the territory defended by the Brewster's Warbler.

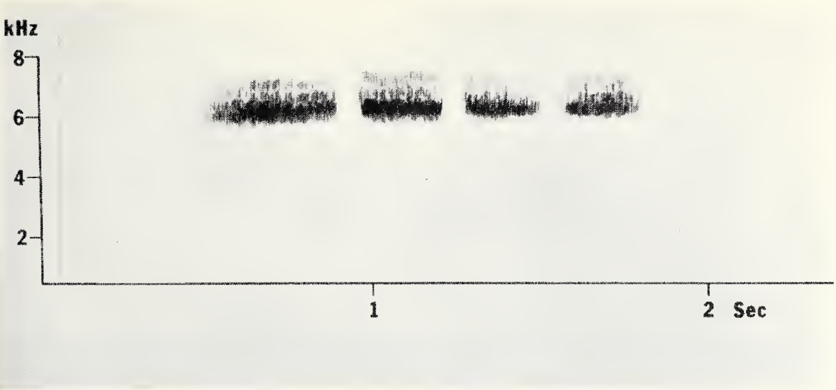

Fig. 3. Sonogram of the territorial song of the Brewster's Warbler. Recording made 27 April 1979 by M. Tove.

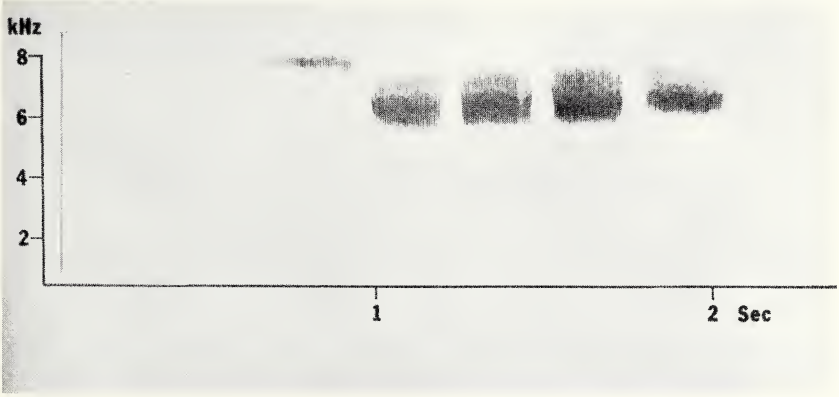

Fig. 4. Sonogram of the territorial song of a Golden-winged Warbler on the Blue Ridge Parkway in North Carolina. Recording made 30 April 1979 by M. Tove.

close to each other, often engaging in chase sequences and occasionally making contact. So intense was the display, that the commotion induced a brief mobbing response from other nearby birds.

I did not see the female after that occasion, but changes in the male's behavior provide evidence that he was paired. After 21 May, the male began to spend more time defending Sector L. Defense of Areas 2 and 3 continued, although at a greatly reduced rate.

Two weeks later, the male was observed carrying food into a particularly dense thicket of sumac and blackberry near the center of Sector L. Because of the thickness of the brush and the ground-nesting habit of the birds, no attempt to locate a nest was made.

On 27 June, a juvenile Golden-winged Warbler was caught and banded in Sector J. On 5 July, an unbanded juvenile Golden-winged and a juvenile Brewster's Warbler were seen in Sector L. Although there is no proof that these young were fathered by the Brewster's Warbler, the circumstantial evidence is highly suggestive.

The present paper represents the first report of a hybrid mating within the Blue-winged (*V. pinus*) - Golden-winged Warbler complex in the southeastern United States. The Fickens (1968b) presented a summary of known cross-matings, reporting the majority of these from the Northeast and none south of Pennsylvania. LeGrand (1976) noted that interbreeding has occurred in West Virginia and Maryland, but details were not given. Normally, neither parental species breeds in the Southeast except in the Appalachian Mountains. LeGrand (1976) located five territorial male Blue-winged Warblers in extreme southwestern North Carolina. Although he also located territorial Golden-winged Warblers in the same counties, no overlap occurred and no evidence of hybridization was found.

The Fickens (1968a) indicate that territory sizes for this complex are roughly 5000 to 7000 m^2. This is approximately the size of Sector L in Area 1, which was most vigorously defended after pairing occurred. Thus the continued defense of Areas 2 and 3 is interesting. Moreover, during the 1978 breeding season, Areas 2 and 3 each had at least one pair of nesting Golden-winged Warblers. At that time, Sector L and the disturbed area were heavily overgrown and did not provide suitable nesting habitat for the species. During March 1979 when the disturbed area was cleared for house construction, only Area 1 was affected by construction activity. This involved removal of the dense vegetation from Sector L. Consequently, the total available breeding habitat was enlarged by this activity. Having lived in the area for 3 years, I can confidently state that the Golden-winged Warbler is locally a very common breeding species of old-field habitat. Thus the male Brewster's Warbler at Cullowhee was apparently able to competitively exclude breeding male Golden-winged Warblers, even though the defended territory probably could have supported at least two other pairs.

ACKNOWLEDGMENTS

I thank Fred Coyle for reviewing the manuscript and making many valuable suggestions. Appreciation is also expressed to David Lee of the North Carolina State Museum for loan of the recording equipment, to James Gullege of Cornell's Laboratory of Ornithology for assistance in production of the sonograms, and to Henry Mainwaring for assistance in printing the photographs.

LITERATURE CITED

Ficken, M.S., and R.W. Ficken. 1968a. Territorial relationships of Blue-winged Warblers, Golden-winged Warblers, and their hybrids. Wilson Bull. 80:442-451.

Ficken, M.S., and R.W. Ficken. 1968b. Reproductive isolating mechanisms in the Blue-winged Warbler - Golden-winged Warbler complex. Evolution 22:166-179.

LeGrand, H.E., Jr. 1976. Notes and comments on the Blue-winged and Golden-winged Warblers in southwestern North Carolina in summer. Chat 40:15-16.

Parkes, K.C. 1951. The genetics of the Golden-winged X Blue-winged Warbler complex. Wilson Bull. 63:4-15.

Pough, R. 1946. Audubon Land Bird Guide. Doubleday and Co., New York. p. 152-155.

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CBC Roundtable

... with Louis C. Fink

Flamingos Disappear

In Etosha National Park in Namibia, scientists note the disappearance of 1,250,000 flamingos in 1976. Nobody has seen them since. The observers are sure the birds are alive, but don't know where they have gone.

Harris' Hawk on Stage

When the New York City Opera produced *Der Freischutz*, it had a bit part for Harry, the Harris' Hawk, owned by Dr. Heinz Meng. State conservation authorities claimed the predator was kept illegally and confiscated it. Argument ensued as to whether the hawk could ever be re-introduced to the wild.

Miscellany

The National Wildlife Federation reports that 4000 volunteer spotters counted 13,709 Bald Eagles in January of 1981, up from 13,046 counted in 1980—and 35% more than were counted in 1979.

A man in Oregon was fined $2,500 for killing a Bald Eagle. He was caught because of a radio transmitter on the bird.

The Black-tailed Godwit popped up from Scandinavia on Merritt Island, Florida, and observers came from as far away as Denver.

Argument rages over how to save the California Condor, of which from 20 to 30 still live in California. One plan is to capture some birds, have them breed in captivity, and attach monitoring devices. At least one condor expert objected to this as meddling.

The Peregrine Falcon has been re-introduced in New York City. Mayor Ed Koch was there when young were released in City Hall Park.

Litter in shopping center parking lots is becoming a food source for Ring-billed Gulls and Herring Gulls in Cleveland. The paved areas probably look like water to the birds.

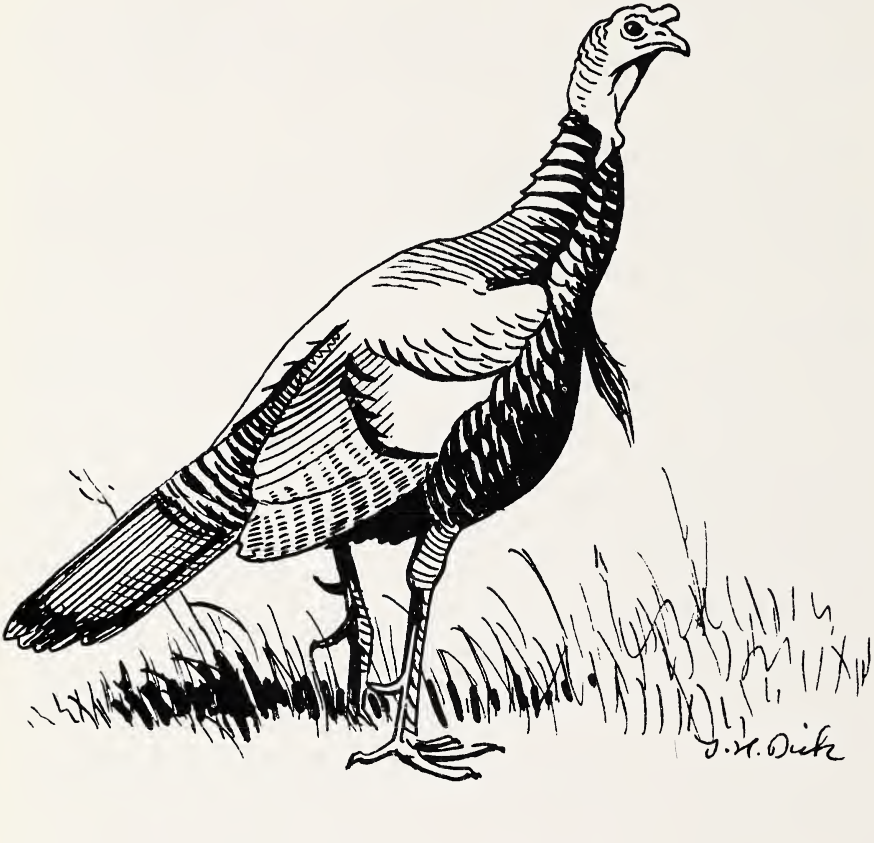
At the Mile Hi Sanctuary in Hereford, Arizona, observers are coming from all over to see the hummingbirds. Fourteen species can be seen, more than at any other place, it is said.

Ring-necked Pheasant's First Century

Minnesota is celebrating the arrival of the Ring-necked Pheasant 100 years ago with a stamp from a painting by Roger Preuss. The stamp is $5; a full-color copy of the painting is $125. Last year, hunters took 466,000 pheasants; the total is expected to be higher this year.

Wild Turkey Coming Back?

Millions of wild Turkeys disappeared from this country, and by 1920 it is said that the bird was gone from 18 of 36 States in which it was native. By 1940, the total population was down to 40,000. (In 1944, I had the thrill of watching birds on Bull's Island, S.C., with Alexander Sprunt. We spent an hour waiting by a trail and the Turkey family arrived. Mr. Sprunt guaranteed that domestic turkeys could not fly or swim from the mainland.) The news is better today and press reports announce two million birds in all 48 States, concentrated in the East.



Backyard Birding

... with Gail T. Whitehurst

At last the calls for items from you folks out there have been heeded. We hope that as you see what others have sent in, even more of you will respond. Our thanks to all the following contributors.

Dinner's Ready—Come and Get It!

In April we had a brood of White-breasted Nuthatches raised in a bluebird house mounted on a pole above our lower deck. The house is positioned so that we look down on it from our dining area. One particular morning the adult bird was acting strangely. It was hanging head down, waving a good-sized moth in its bill in front of the hole. After a short while one of the young flew out of the hole and then, another. The adult birds continued to feed young in the nest for another day or so. I did not see the others fledge.—MARTHA S. FREDERICK, 262 Howard Gap Road, Tryon, N.C. 28782

A Titmouse with a Sweet 'Tooth'

On several occasions this summer (1981) we observed a Tufted Titmouse drinking sugar water from our hummingbird feeder. We believe it to be the same bird each time as it had a pattern of approaching the feeder. The feeder hangs over the edge of a second-story deck. The titmouse would come to the floor of the deck, hop under a deck chair and up to the back of the chair. From there it flew and perched on the edge of the red plastic flower of the feeder. The titmouse positioned itself so as to reach inside the flower from the top. Because the yellow perforated center of the flower had dropped out, the bird could get its bill in through the hole.—MARTHA S. FREDERICK, 262 Howard Gap Road, Tryon, N.C. 28782

It was, Indeed, an Ill Wind

On the morning of 5 October 1981 Rose Williams found a Ruffed Grouse dead in a second-floor window of her home in Boone, Watauga County, N.C. The house is near the base of Howard's Knob, at the edge of a second-growth hardwood forest reaching the western property line. I have occasionally seen and heard Ruffed Grouse in these woods. The dead bird was lodged 4.1 m above ground in a .76 x .45 m section of a 1.7 x .9 m window. We believe that the bird hit the window during the high winds of 2 October. Rose and her husband John heard a mysterious thud that day and saw a feather in a lower window the next day. Even though the bird had been dead at least 3 days, I found it to be stiff but not putrid. The only obvious injury was a cut on the right foot. The impact was hard enough to penetrate both panes of double glazing and push in the inner window screen. I photographed the bird, removed it, and temporarily preserved it by freezing. Due to the size of the bird and force of impact, it is the most unusual window kill I know of.—JOSEPH K. WILLIAMS, 812 Faculty Street, Boone, N.C. 28607

A Possible Reason Why Sparrows (Ubiquitous Weaver Finches) Quarrel

"A quarrel of sparrows," a term of venery applied to a flock of the seemingly anti-social weaver finches we know as House Sparrows or English Sparrows, is a very apt phrase because these birds seem forever in combat or contention over a pile of manure or less substantive possession of equally dubious value. Many observers say that in addition to male versus male battles over females or territories, often several males will attack a female without apparent provocation! This fighting behavior does not seem to follow a particular "pecking order" or take place only on the fringes of territories; rather, it may break out at any time between usually compatible flock members. Recently, I have watched closely as a group feed at my window ledge and in the adjacent shrubbery. Many young, subadults, and "courting females" beg food to elicit a paternal response from the males, who usually feed the persistent beggars. Those with still-visible soft gapes are always fed, but as they grow older and bolder, soliciting all adult sparrows, male and female alike, the gape retreats and the entire beak hardens. This stage signals the maturing bird is well able to feed itself; but it has now acquired the potentially dangerous habit of approaching strangers for "handouts." Careful observations showed these intermediate birds were subject to sudden attack by birds that formerly fed them (thus teaching them not to be so trusting?). Certainly such learning experience might prevent their innocent but fatal approach to shrikes, cats, or humans, and so have survival value for the individual and the species.

Some other reasons may be suggested for this almost unique intraspecies behavior—ritualistic flock-bonding, for instance, since all observers as well as participants become more agitated as a fight progresses. (Some cannot contain themselves and join the fray after watching from ever-closer vantage points, although the source of the contention could hardly have involved them directly.) Whatever the other stimuli that trigger "quarrel" response in the House Sparrow, the practical effect of a rite of passage for young birds must rank as important to survival, and should be considered as one of the possible reasons we so often see or hear "a quarrel of sparrows."

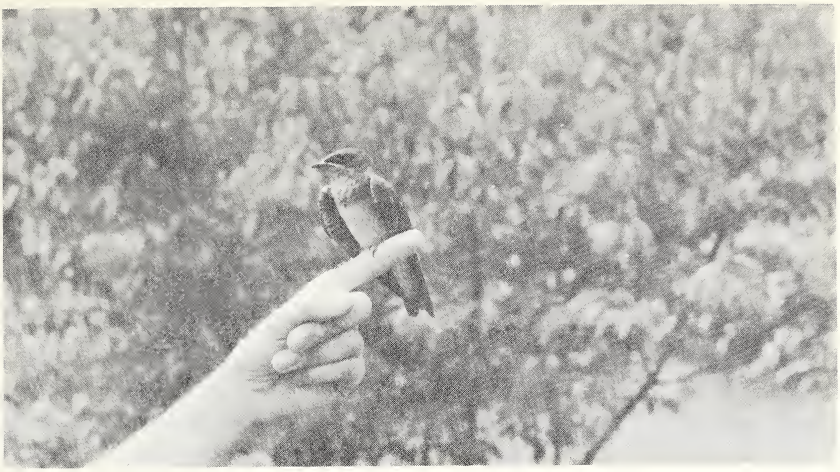
Among mammals, the Beaver exhibits a sort of rite of passage, in which the 2-year-old young are forcibly driven from the parental lodge to establish their own.—DANIEL M. WATSON, 107 A Hope Street, Greenville, S.C. 29601

Rearing Out Cheepie

The 1981 season was not one of the very best for martins at Raleigh. A cool snap in May caused four pairs to lose broods, and hot, dry weather in mid-July wiped out attempts at renesting. Insect failures caused all late broods to be abandoned, a very rare thing in adult Purple Martins.

The latest brood of all consisted of four young, and all but one died. That one bird, about 2 weeks of age when we rescued it, was lively and seemed determined to live although it was little more than skin, bones, and feathers. We tried feeding the waif raw hamburger and boiled egg. At first we had to poke the food down the reluctant bird's throat, but as little Cheepie—as we named our new pet—gained strength he became more cooperative. I say he because of the bird's huge, blocky head. For the next few weeks my son David and I spent much of our spare time scurrying after grasshoppers and crickets, and for once I found a use for the Japanese Beetles that insist upon infesting my garden.

There are many old-wives tales about martins. One insists that a young bird consumes its weight in food each day. Maybe some do, but Cheepie, once he regained



CHEEPIE

his strength, put away about 1 ounce per day, which was about one-half his weight. From a stub-tailed fledgling at 2 weeks, Cheepie grew into a sleek 4-week-old with a forked tail. At 4 weeks martins leave the nest, but are still dependent upon the parent birds for at least 2 more weeks. We let Cheepie practice flying indoors. Although he seemed tame, we knew he might fly away to starve if we let him venture outdoors.

By the time Cheepie was making his first short flights, he was accompanying us to the cotton fields for our daily work. One morning in early August the young martin escaped from our work van and flew away. Oh well, nature was bound to call sooner or later. But when we arrived for work the next morning, we found Cheepie in a pine thicket waiting to be fed. He had no qualms about coming to David's hand while William Brown fed him grasshoppers. We allowed Cheepie to sleep at the research station for the remainder of that week and learned that he had learned to drink on the wing like his wild brethren. That weekend we placed him in a gourd to roost outdoors. The next morning, Cheepie was gone.

I like to think that he returned a few days later with some of his wild kin. Six martins, including two young of the year, perched on our TV aerial. One bird sailed low over our heads before departing southward. Maybe it was Cheepie's way of saying thanks and goodbye.—JOSHUA A. LEE, 5104 Newcastle Road, Raleigh, N.C. 27606

> [Note: Stories about raising baby birds are fairly commonplace, but we felt this one, about a Purple Martin, most unusual and of interest to everyone.—GTW]

This department encourages reports on observations of bird behavior. One never knows when something really significant may turn up and a real contribution can be made to the literature of ornithology. It is all right to raise questions as to the meaning of such behavior, and even to do a bit of speculation. We would, however, caution our readers to resist the temptation to draw positive conclusions. For if we do, we can be certain that our statements will be challenged. Sharing the things we see birds do with other birders will enable us to learn whether or not we have made a real discovery. So please continue to let us hear from you.

General Field Notes

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Bill-vibrating Feeding Behavior in the Snowy Egret

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About 0700 on 18 August 1981 I noticed unusual feeding behavior in a Snowy Egret (*Egretta thula*) at North Pond in the Pea Island National Wildlife Refuge, Dare County, N.C. The bird was standing in water that reached the feathered portion of the legs. Its body and lower neck were held parallel to the surface of the water and just barely above it. The upper neck arched to permit immersion of the tip of the bill in the water. The bird opened and closed the bill almost imperceptibly at a very rapid rate. This caused visible turbulence in the water at the point of immersion. Occasionally the heron assumed an upright posture and took a few steps before crouching and again vibrating the bill in the water. Twice the bird moved forward very slowly without removing the bill from the water or ceasing the vibrations. The behavior continued for about 15 minutes after I first noticed the bird. The egret then left the water and stood on a nearby island. Although the Snowy Egret is generally a very active bird while feeding, this one appeared to be using the bill vibrations as a variation on the crouched stand-and-wait technique regularly employed by the Green Heron (*Butorides striatus*).

Kushlan (Auk 93:86-94) summarizes 28 feeding behaviors recorded for one or more of the North American herons. He lists three species reported as having used bill-vibrating to create a disturbance that attracts prey: Black-crowned Night-Heron (*Nycticorax nycticorax*), Cattle Egret (*Bubulcus ibis*), and Snowy Egret. James F. Parnell (pers. comm.) says that he has seen bill vibrations employed on several occasions by Black-crowned Night-Herons feeding in floating mats of algae. Perhaps the technique is not as uncommon as the few published reports suggest.

A Bird List for Caldwell County, N.C., in Late May

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On 30 May 1981 I spent several hours watching birds near Hudson, Whitnel, and Lenoir in south-central Caldwell County, N.C. Elevations here range from 950 feet (Hudson) to 1182 feet (Lenoir), and the habitat is primarily rolling hills forested by Pitch Pine (*Pinus rigada*).

Forty avian speicies were recorded, and of these the 30 that showed territorial behavior are followed by an asterisk (*): Sharp-shinned Hawk 1, Cooper's Hawk 2*, Mourning Dove 10*, Chimney Swift 3, Common Flicker 2*, Downy Woodpecker 2*, Great Crested Flycatcher 3*, Eastern Wood Pewee 1*, Barn Swallow 8, Blue Jay 10+*, Carolina Chickadee 5*, Tufted Titmouse 3*, White-breasted Nuthatch 1*, Brown-headed Nuthatch 5*, House Wren 2*, Carolina Wren 2*, Mockingbird 7*, Gray Catbird 2*, Brown Thrasher 3*, American Robin 15+*, Wood Thrush 3*, Veery 1, Eastern Bluebird 8*, Golden-crowned Kinglet 1, Cedar Waxwing 4, Black-and-white Warbler 3*, Yellow Warbler 1, Pine Warbler 2*, Ovenbird 6*, Eastern Meadowlark 10+*, Orchard Oriole 2*, Common Grackle 25+*, Brown-headed Cowbird 5+, Scarlet Tanager 2*, Cardinal 15*, Indigo Bunting 1*, Rufous-sided Towhee 8*, Dark-eyed Junco 4, Grasshopper Sparrow 1 (heard only), and Song Sparrow 20+*.

Unfortunately, the brevity of my stay precluded searching for nests. Nevertheless, several of the occurrences warrant further comment. I found the Cooper's Hawks at Lenoir occupying a 5-mile stretch of lowland between two mountains, one of which has a forest station and hang-gliding point at the summit. The Pine Warblers were between Hickory (Catawba County) and Hudson along US 321-A (ca. 925 feet), and the Brown-headed Nuthatches were along US 321 in a grove of pines near a pottery shop on the way to Lenoir (ca. 1050 feet). Brown-headed Nuthatches were first reported nesting in Caldwell County in 1974 (Chat 38:66). The Orchard Orioles were at the same location as the nuthatches but on the other side of the road in deciduous shade trees. The Veery, Golden-crowned Kinglet, and Dark-eyed Juncos were undoubtedly late transients at the elevations covered.

A Winter Bird Survey of Graham County, N.C.

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Early ornithological explorations of the North Carolina mountain region such as those conducted by William Brewster (1886) completely bypassed Graham County. It was not until 1944-1946 that Ganier, conducting research mainly at high-altitude (4000 to 5472 feet) sites, described the summer birds of the Unicoi Mountains, which constitute the western edge of the county (Ganier and Clebsch 1944, 1946). More recently (from 1968 to 1978), five breeding bird surveys have been conducted around the Fontana Village area by Mary Enloe, John Wright, and Harry E. LeGrand Jr. Additionally, several bird sightings have appeared in *The Chat*, representing observations made from the months of April through September. No published distributional records have appeared for the months from October to March.

Graham County has eight mountaintops rising above 4900 feet. Four major lakes are either partially or wholly within the county: Lake Santeetlah, Fontana Lake, Cheoah Lake, and Calderwood Lake. Of these, Santeetlah is the highest with an average surface elevation of 1920 feet, and Calderwood is lowest at 1080 feet. The proximity of these lakes to the Tennessee Valley suggests the possibility of wintering water birds straying from that prime waterfowl habitat.

From 29 through 31 December 1980, Owen McConnell and I surveyed winter birds in Graham County. We covered most of the county, including the high peaks of Hooper Bald, Oak Knob, and Big Huckleberry Knob in the western Unicoi Mountains; the length of Big Santeetlah Creek; the area surrounding Santeetlah Lake in the center of the county; Joyce Kilmer Memorial; Maple Springs Observation Point; the valleys of Cochran, Yellow, and Sweetwater Creeks; NC 28 from Stecoah to Fontana; US 129 from Robbinsville to Tapoco; Calderwood, Cheoah, and Fontana Lakes along the northern county boundary; and a portion of the Appalachian Trail in the Yellow Creek Mountains. Although light snow fell on the night of 30 December, the weather was mostly clear to partly cloudy with overall temperatures for the three days ranging from about 34° to 41° F (as recorded in Robbinsville).

We recorded 834 individual birds representing 50 species: Pied-billed Grebe 1, Black Duck 5, Sharp-shinned Hawk 2, Red-tailed Hawk 1, American Kestrel 4, Bobwhite 21, Mourning Dove 3, Screech Owl 1, Great Horned Owl 4, Barred Owl 1, Belted Kingfisher 3, Common Flicker 1, Pileated Woodpecker 11, Red-bellied Woodpecker 3, Yellow-bellied Sapsucker 4, Downy Woodpecker 10, Eastern Phoebe 2, Blue Jay 12, Common Crow 58, Carolina Chickadee 59, Tufted Titmouse 13, White-breasted Nuthatch 7, Red-breasted Nuthatch 12, Brown Creeper 2, Winter Wren 1, Carolina Wren 17, Mockingbird 1, Brown Thrasher 1, American Robin 3, Hermit Thrush 2, Eastern Bluebird 20, Golden-crowned Kinglet 37, Ruby-crowned Kinglet 1, Water Pipit 1, Starling 37, House Sparrow 4, Rusty Blackbird 1, Cardinal 19, Evening Grosbeak 3, Purple Finch 42, Pine Siskin 15, American Goldfinch 34, Red Crossbill 6, Rufous-sided Towhee 16, Dark-eyed Junco 215, Field Sparrow 23, White-throated Sparrow 38, Fox Sparrow 5, Swamp Sparrow 7, and Song Sparrow 47.

The Water Pipit, regarded as a rare winter visitor in the North Carolina mountains (Potter et al. 1980), was found along the broad, unvegetated shoreline of Santeetlah Lake, which had been drawn down approximately 30 feet. The Pied-billed Grebe was on the lake itself, whereas the five Black Ducks were feeding in a small, shallow recess of the otherwise deep Cheoah Lake. The Brown Thrasher, Mockingbird, and Rusty Blackbird were noteworthy, if only for the fact that just one of each could be found. They were at elevations slightly below 2000 feet. The most abundant bird was the Dark-eyed Junco, which was commonest in the valleys but could be found in small flocks along roadcuts at the higher elevations. A few were present even on the tops of the highest balds. Other birds present on the balds were the Carolina Chickadee and Downy Woodpecker. The most frequently seen woodpecker in the county was the Pileated. Its apparent numerical edge over the Downy may be due to its noisy and conspicuous habits. Pileated Woodpeckers called more frequently and certainly louder than Downy Woodpeckers when both were present for comparison. Because the 1980-81 winter provided a substantial influx of northern finches in the Carolinas, it is not surprising that Evening Grosbeaks, Purple Finchs, Pine Siskins, and Red Crossbills were seen. The six Red Crossbills were in Pitch Pines bordering the West Buffalo Creek arm of Lake Santeetlah. In general, both the number of species and the number of individual birds declined with increasing elevation.

ACKNOWLEDGMENTS

Appreciation is expressed to William H. Buskirk, associate professor of biology at Earlham College, for perusing this article and offering advice. Breeding Bird Survey data were provided by Harry E. LeGrand Jr. of Clemson University.

LITERATURE CITED

Brewster, W. 1886. An ornithological reconnaissance in western North Carolina. Auk 3:94-112, 173-179.

Ganier, A.F., and A. Clebsch. 1944. The breeding birds of the Unicoi Mountains. Migrant 15:61-65.

Ganier, A.F., and A. Clebsch. 1946. The breeding birds of the Unicoi Mountains. Migrant 17:53-59.

Potter, E.F., J.F. Parnell, and R.P. Teulings. 1980. Birds of the Carolinas. Univ. N.C. Press, Chapel Hill. p. 283-284.

BRIEFS FOR THE FILES

HARRY E. LeGRAND JR.
(All dates 1981)

PIED-BILLED GREBE: Rare for early summer was an individual on Cheoah Lake, Graham County, N.C., on 15 June, as seen by Jim McConnell.

AUDUBON'S SHEARWATER: In Carteret County, N.C., were birds seen from a pier at Atlantic Beach on 3 July by Jim McConnell, and picked up alive in a yard at Williston on 26 July (fide Mark Shields).

GANNET: Late were single subadults observed at Atlantic Beach, N.C., on 6 June (Bob Holmes) and on 7 June (John Fussell).

DOUBLE-CRESTED CORMORANT: Jay Carter noted eight in flight near McCain, Hoke County, N.C., on the unusual date of 1 June.

ANHINGA: Possibly breeding were as many as four seen at Jessup's Mill Pond near Fayetteville, N.C., from 29 May to 10 August, fide Philip Crutchfield; three seen in southeastern Craven County, N.C., on 3 July by Gene Huntsman; and 11 noted at Lay's Lake near Nakina in Columbus County, N.C., on 7 July by Jim McConnell. A female seen by Douglas McNair at Johns Pond in Scotland County, N.C., on 10 June was considered a nonbreeder.

MAGNIFICENT FRIGATEBIRD: An immature was seen over Pawleys Island, S.C., on 2 June by Margaret Cely, and another (of unspecified sex and age) was noted near Cape Lookout, N.C., by Lloyd and Martha Davidson on 25 June.

CATTLE EGRET: One was noteworthy near Southern Pines, N.C., on 7 July (Jay Carter). Jim McConnell reported a possible heronry at Lay's Lake in Columbus County on 7 July. At least 200 Cattle Egrets, some carrying nesting material in their bills, were noted, as were 30 Little Blue Herons, 12 Snowy Egrets, seven Great Egrets, and an unspecified number of Least Bitterns and White Ibises.

REDDISH EGRET: A very good find was an individual seen by Fran and Wayne Irvin on 21 June at the Cedar Island, N.C., ferry landing.

SNOWY EGRET: Gail Whitehurst saw one at the Falls of the Neuse dam in northern Wake County, N.C., on 12 July.

LOUISIANA HERON: One was uncommon at Jordan Reservoir in eastern Chatham County, N.C., on 1 August, as seen by the Chapel Hill Bird Club.

WOOD STORK: Ricky Davis first noted individuals (five) at the summering site near Sunset Beach, N.C., on 23 June.

WHITE IBIS: A good post-breeding count was 40 immatures at Jordan Reservoir on 13 July (Bill and Margaret Wagner).

SNOW GOOSE: Eleven was a good total at Pea Island, N.C., on 9 July, as reported by Allen Bryan.

MISSISSIPPI KITE: For the third consecutive summer, a pair nested in Cayce, S.C., across the street from Jimmy Beatty's home. Douglas McNair saw two adults in southwestern Richmond County, N.C., on 26 July, but unfortunately found none there or in adjacent Anson County in May or June (when the presence of adults would more likely indicate the possibility of breeding). A very rare visitor was an adult seen well at Jordan Reservoir on 13 July by Bill and Margaret Wagner.

SHARP-SHINNED HAWK: Douglas McNair saw an immature at Pee Dee National Wildlife Refuge, N.C., on 4 June.

COOPER'S HAWK: One was noted by Paul Hamel near Anderson, S.C., on 14 June, and an immature was seen by Mike Schultz and Jim McConnell near Durham, N.C., on 3 August.

BALD EAGLE: Rare for the Sandhills region was an adult seen by Jay Carter and Fred Yelverton in western Hoke County on 10 July.

MARSH HAWK: A good count of five was reported at Cedar Island on 22 June by John Fussell and Wayne and Fran Irvin. At least one was present in June and July at Jordan Reservoir (Allen Bryan et al.).

OSPREY: Uncommon for the mountains were several seen at Lake Julian near Asheville, N.C., on 30 July by Gail Whitehurst. One was out of season in early June at Clemson, S.C. (Harry LeGrand, Alan Avakian).

AMERICAN KESTREL: Perhaps indicative of nesting was an adult male seen flying from a road sign pipe over I-40 near the Greensboro, N.C., airport on 30 May (Wayne Irvin). Very rare near the coast was a pair seen carrying anoles into a woodpecker hole on Old Fort Road in I'On Swamp, NE of Charleston, S.C., on 17 May (Perry Nugent, Steve Compton); presumed nesting was reported from this site last year. At Winston-Salem, N.C., two fledglings were found on the ground in town on 24 and 30 May, hand-reared, and later released (Ramona Snavely, Phil Page). Jay Carter, Tim Stamps, and others reported kestrels on seven dates from 2 June to 2 July at five sites in western Fort Bragg, N.C., with a group of five (a family party?) on 1 July.

SORA: An early migrant was seen by Harry LeGrand at a farm pond near Pendleton, S.C., on 25 July.

BLACK RAIL: Allen Bryan saw one at Jordan Reservoir on 27 June, after the rail had come to a taped call. As the species has been noted there for three consecutive summers, breeding is strongly suspected.

BLACK-NECKED STILT: Conclusive nesting was reported from North River marsh near Beaufort, N.C. An egg was found by Wayne Irvin on 6 June, and three pairs were present all summer, with three juveniles seen with one of the pairs (fide John Fussell). Fussell also noted post-nesting individuals at Davis, N.C., with six on 26 July and nine on 2 August.

AMERICAN AVOCET: Very rare inland was one noted by Brainard Palmer-Ball at a small pond SE of Clayton, N.C., on 25 July.

WHIMBREL: A high total for June was 13 observed on the 17th at Beaufort, N.C., by John Fussell.

LONG-BILLED CURLEW: Mike and Barb Homoya saw one on 5 June at Hatteras Inlet, N.C.

UPLAND SANDPIPER: Rare inland in fall were three at the Lumberton, N.C., airfield on 17 July (Douglas McNair) and two along the Neuse River at the Durham—Wake County border on 2 August (Jim McConnell). Three were early on 7 July at the New Hanover County, N.C., airport (Ricky Davis).

WILLET: A good inland find was one noted by Eloise Potter and John Erickson at a farm pond near Bunn, Franklin County, N.C., on 4 July.

SPOTTED SANDPIPER: Ricky Davis noted a "singing" individual, perhaps indicating the presence of a territory, along the South Fork New River near Weavers Ford in Ashe County, N.C., on 4 June.

RUDDY TURNSTONE: One noted by the Chapel Hill Bird Club at Beaverdam Reservoir in northern Wake County on 18 July was rare for the piedmont.

WILSON'S PHALAROPE: Rather early fall migrants were one at Pea Island on 30 and 31 July (Allen Bryan) and two at Davis, N.C., on 2 August (John Fussell, Brainard Palmer-Ball).

COMMON SNIPE: One on 5 August was several weeks early in northern Durham County, N.C., as noted by Jim McConnell.

SHORT-BILLED DOWITCHER: Eloise Potter and John Erickson saw an early individual near Bunn, N.C., on 4 July.

WESTERN SANDPIPER: Rare for Durham County was one along the Neuse River on 3 August (Jim McConnell, Mike Schultz), and one was early near Bunn on 4 July (Eloise Potter).

LEAST SANDPIPER: A first Carteret County, N.C., record for June was a bird at Cedar Island on 22 June (John Fussell et al.). Rather early inland were one seen at Clemson on 6 July by Harry LeGrand, and four seen by John Sneeden and Eloise Potter on 9 July near Bunn.

DUNLIN: John Fussell observed two at Beaufort, N.C., on 17 June. The species is rare on the coast in that month.

STILT SANDPIPER: At an impoundment near Davis, John Fussell and Wayne Irvin noted 35 on 12 July and 65 on 26 July.

RUFF: An outstanding find was one, considered to have been an adult female, at North River marsh near Beaufort on 31 July. John Fussell and Brainard Palmer-Ball saw the large, white, oval patches on the sides of the tail and a diamond-shaped patch of black feathers on the breast.

POMARINE JAEGER: Seldom reported in July, one was seen by Dave Lee and Wayne Irvin off Oregon Inlet, N.C., on 8 July.

RING-BILLED GULL: Unusual midsummer sightings were two in a field near Valle Crucis, Watauga County, N.C., on 4 June (Ricky Davis), and one at Clemson on 9 and 18 July (Alan Avakian).

FORSTER'S TERN: Tom Haggerty saw a rare and early migrant near Clayton, N.C., on 27 July. The bird, in winter plumage, was injured and was picked up at a farm pond.

ROSEATE TERN: One in full breeding plumage, and described in detail, was seen at a pond on Pea Island on 6 June by Mike Homoya.

SOOTY TERN: Unusual was an adult seen sitting with other terns at Cape Lookout, N.C., on 18 June (Skip Prange).

BLACK TERN: Inland reports for "early fall" were single birds in North Carolina near Smithfield on 5 July (Tom Haggerty), in eastern Durham County on 29 July (Jim McConnell), and at Lake Julian near Asheville on 30 July (Gail Whitehurst).

BLACK-BILLED CUCKOO: Tom Haggerty saw an adult feeding another adult, perhaps a courtship activity, on Potato Hill in Watauga County, N.C., on 25 July. He heard another singing at nearby Blowing Rock on 26 July.

SAW-WHET OWL: Three were heard calling on Roan High Knob, N.C., on 27 June, as noted by Herb Wilson and Bruce Lord.

WHIP-POOR-WILL: Philip Crutchfield reported as many as eight birds in the Fayetteville and Fort Bragg areas of North Carolina from April to August. Apparently outside the known breeding range was one calling 6 miles S of New Bern, N.C., on 18 June (John Fussell).

GRAY KINGBIRD: Rare was an individual noted by Woody Martin just NE of Atlantic, N.C., on 22 June.

EASTERN PHOEBE: In Richmond County, N.C., near the edge of the breeding range, Douglas McNair found phoebes to be widely distributed during the summer in the piedmont, but only sparingly distributed in the coastal-plain portion of the county.

OLIVE-SIDED FLYCATCHER: One was seen in a locust-maple thicket at the edge of an upland meadow on Hanging Rock Mountain, Watauga County, N.C., on 7 June (Philip Crutchfield, Kevin Mason). Although breeding is conceivably possible at this site, no evidence (such as singing) was reported.

HORNED LARK: Ricky Davis and Steve Leonard found four pairs on Pond Mountain, Ashe County, N.C., on 3 June; and Edmund Taylor saw at least six birds, including singing males, at Reidsville in Spartanburg County, S.C., in early July. Jay Carter reported two near Maxton, N.C., on 19 June. Douglas McNair noted unprecedented numbers for the North Carolina coastal plain in summer: 14 pairs in the Sandhills portion of Richmond County, four pairs at the Laurinburg-Maxton airfield in Scotland County, and eight or nine adults plus young at the Lumberton airfield in Robeson County. McNair also had Horned Larks in the piedmont in Anson and Montgomery counties in that state during the summer.

TREE SWALLOW: An immature was a fairly early migrant at Fayetteville on 11 July (Philip Crutchfield et al.).

BANK SWALLOW: Fall arrivals were observed as early as 19 July at Fort Macon State Park, N.C. (John Fussell, Robert Hader) and 22 July at Long Beach, N.C. (Jay Carter, Tim Stamps).

BARN SWALLOW: Most unusual was an individual in total albinistic plumage near Winston-Salem on 16 July, as noted by Ramona Snavely and Kay and Joe Bergey.

CLIFF SWALLOW: As many as five pairs were seen at the US 74 bridge over the Pee Dee River in Richmond County on 28 June by Jim McConnell, who saw a pair feeding young there on 7 July. Two small nesting colonies were observed by Harry LeGrand during the summer under bridges over the Tugaloo River in western Oconee County, S.C.

PURPLE MARTIN: Philip Crutchfield reported as many as 3000 post-breeding birds at one site in the Fayetteville area in early August.

COMMON RAVEN: Sightings in Ashe County, N.C., were four over the community of Brown on 3 June (Ricky Davis) and three at Bluff Mountain on 11 July (Jim McConnell).

FISH CROW: One or two were noted by Jim McConnell at Durham on several occasions all summer. The species is quite rare in that area after the spring season.

HOUSE WREN: A pair made a nesting attempt (but with no offspring produced) at Fayetteville, being seen by Henry Rankin from 7 May into August.

CEDAR WAXWING: The first nesting record for South Carolina was reported by Sidney Gauthreaux from the Oconee Nuclear Station a few miles N of Seneca. Two nests, one under construction, were noted in the same tree, and four adults were observed, all on 2 June. The habitat was scattered, planted Sugar Maples on the grounds of the station. A rare North Carolina piedmont breeding record was made when Fred and Sally Hill found a fledgling sitting on a sidewalk in Forsyth County on 3 July. Other summer sightings were of one at Chapel Hill on 27 June (Marc Eisdorfer) and two at Southern Pines on 17 July (Jay Carter).

LOGGERHEAD SHRIKE: Unusual for Ashe County was one seen near Weavers Ford on 3 June, at an elevation of 2500 feet, by Ricky Davis. A number of observers, especially in the piedmont, reported on the continued decline of this species as a breeder.

SOLITARY VIREO: Douglas McNair noted four singing males on territory on Morrow Mountain, Stanly County, N.C., on 23 May, and another singing on that date along the Richmond-Montgomery County line. All birds were in mixed pine-hardwood forests.

PROTHONOTARY WARBLER: The first indication of breeding in the North Carolina mountains was a male singing vigorously on 14 June where West Buffalo Creek enters Lake Santeetlah in Graham County (Jim McConnell).

SWAINSON'S WARBLER: Jim McConnell noted six birds at four sites in northwestern Graham County in June; and on 15 and 16 June an empty nest was found along the Cheoah River, with three birds (one an apparent juvenile) nearby. Douglas McNair discovered two singing birds in Scotland County, and three at two places in Robeson County, on 30 May.

CERULEAN WARBLER: In Graham County on 15 June, Jim McConnell found a singing bird just above the dam of Fontana Lake, and five near Tuskeegee.

LOUISIANA WATERTHRUSH: Significant reports, apparently of territorial birds, were of one singing along the Cape Fear River at Elizabethtown, N.C., on 24 May (Douglas McNair); one singing at Otter Creek near Croatan in Craven County, N.C., on 9 and 11 June (John Fussell); and a nonsinging bird in Jones County, N.C., 8 miles SW of New Bern, on 10 June (Fussell).

BOBOLINK: Ricky Davis flushed a silent male from tall grass near Weavers Ford, N.C., on 4 June. Nesting, or possible nesting, has occurred on several occasions previously in the northwestern corner of the state. Presumed migrants on 3 June were a male at Derby and a female at Norman, both in Richmond County (Douglas McNair).

NORTHERN ORIOLE: A male was seen and heard in June in northern Alamance County, N.C., by Allen Bryan.

SCARLET TANAGER: Douglas McNair noted a few in the breeding season in Anson and Richmond Counties, and seemingly far out of range was an individual seen singing on territory by McNair at Hog Creek in Robeson County on 30 May.

ROSE-BREASTED GROSBEAK: Robert Ruiz observed a pair all of June in his yard at Swannanoa, N.C. (2265 feet). Most breeding birds are found in that state above 3500 feet in elevation.

INDIGO BUNTING: Quite high in elevation during the breeding season were a male at the rhododendron gardens on Roan Mountain, N.C., and two singing on nearby Jane Bald, on 27 June (Herb Wilson, Bruce Lord).

DICKCISSEL: A female was seen at Columbia, S.C., on 18 May by Jimmy Beatty, Lex Glover, and John Paquet; however, it was not seen on later dates.

HOUSE FINCH: This species probably bred for the first time at Fayetteville. Adults were seen by Philip Crutchfield and Henry Rankin from 29 June to August, with a pair plus three immatures noted on 17 August.

AMERICAN GOLDFINCH: Near the edge of the breeding range were as many as six individuals noted in the Fayetteville area during the summer by Philip Crutchfield.

RED CROSSBILL: Rare for South Carolina in summer was a female seen by Steve Cox in Greenville on 2 July.

GRASSHOPPER SPARROW: Ricky Davis noted an adult and a possible juvenile at the New Hanover County, N.C., airport on 30 July.

BACHMAN'S SPARROW: Rather rare for the Columbia area was a singing bird seen by John Cely in June at the Congaree Swamp National Monument.

SONG SPARROW: The southern breeding limit of the Atlantic race was extended south to Cedar Island, where John Fussell and Wayne Irvin found 10 territorial males in 3 miles near the ferry terminal on 22 June. Two recently fledged young were also seen.

CORRIGENDA: The Red-cockaded Woodpeckers in Johnston County, N.C. (Chat 45:52), were at Smithfield, and not near Four Oaks as reported. The Nashville Warbler near McCain, N.C. (Chat 45:53) was seen by Jay Carter and Tim Stamps (not Tom Howard).

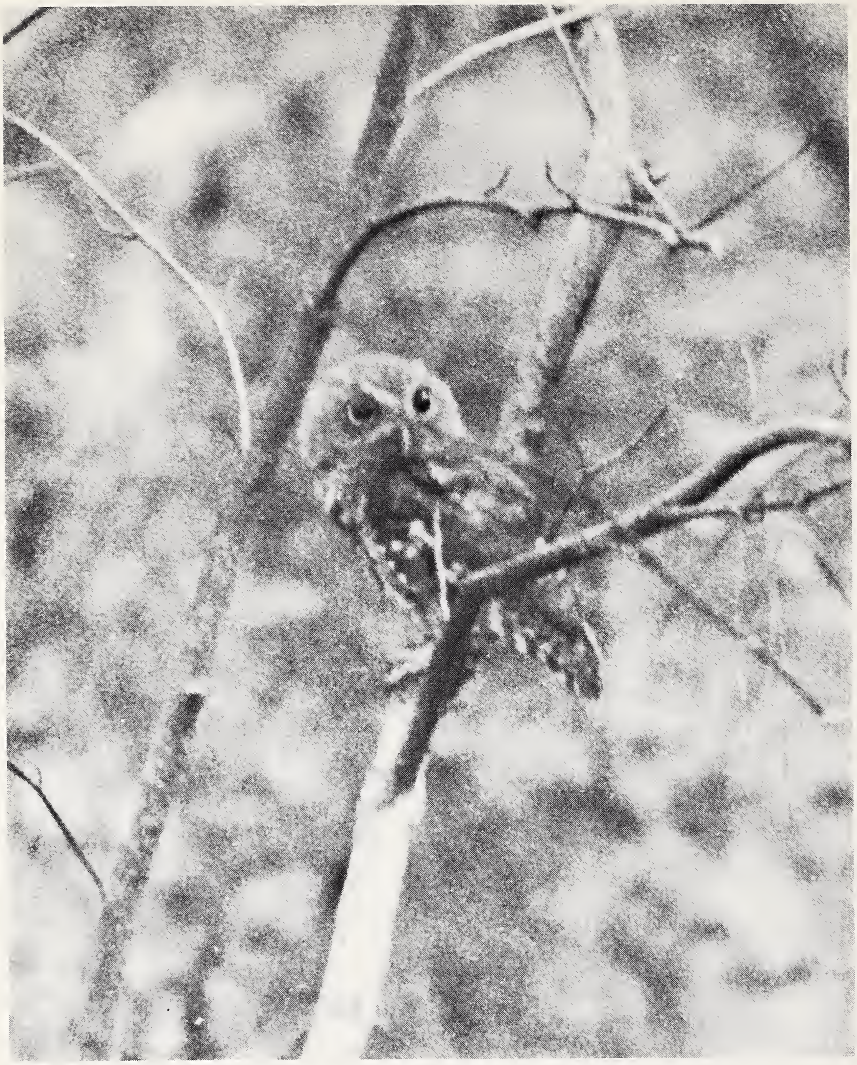

PHOTO QUIZ
Answer on Page 28

BOOK REVIEWS

AMERICA'S ENDANGERED BIRDS

Robert M. McClung. 1979. William Morrow and Company, New York. Illus. by George Founds. 160 p. Price NA.

The Library of Congress classifies this as "juvenile literature," but adults will enjoy it. Professional ornithologists and conservationists will find nothing new in it, but for many other bird students, the book is a straightforward, unsentimental account of efforts to save Whooping Cranes, Bald Eagles, Brown Pelicans, California Condors, Kirtland's Warblers, and Ivory-billed Woodpeckers. Each bird gets a full chapter, with details of the various and oft-debated methods of rescue. A final chapter touches on many other endangered species, and it is encouraging to read of the efforts being made to save them. The book ends with this: "The death of a species is forever."—LCF

BEYOND THE BIRD FEEDER

John V. Dennis. 1981. Knopf, New York. Illus. by Mathew Kalmenoff. 201 p. Index. Hardcover, $13.95.

There is no way I can give this book an impartial review. John Dennis and I have spent many hours discussing bird behavior and methods of pursuing this fascinating aspect of bird study. As he graciously acknowledges, I previewed part of the manuscript. And for nearly 20 years I have been touting the advantages of using the home as a bird blind. This close involvement makes me prone to praise the author when he expresses my sentiments exactly and to criticize him—perhaps unjustly—when he neglects a topic I deem important.

Beyond the Bird Feeder is a sequel to Dennis's very successful *Complete Guide to Bird Feeding*. Like the earlier work, this one is an intensely personal account written in the first person singular. The nine chapters treat migration and bird feeding, food, water, anting and related antics, eluding enemies, confrontations, habitat and food plants, reactions to inclement weather, and houses and their attractions to birds. Although there are frequent references to feeders, the book basically explains what backyard birds are likely to do when they are not eating at the feeders. There is an extensive discussion of grooming behaviors—water-bathing, anting, sunning, dusting, and preening. Unfortunately, several related topics (scratching, wing-stretching, bill-wiping, and molting) are omitted or mentioned only briefly. Frequent references to events related to courtship and nesting make me long for a chapter on the reproductive cycle. This would not have to be lengthy or technical—just the basic perspective needed for an intelligent reading of Bent's *Life Histories*.

Dennis refers in his preface to the contributions of amateurs to the study of bird behavior, and in the chapter on eluding enemies he mentions the importance of keeping careful notes on observations. As the editor of *Chat*, I wish the author had placed more emphasis on note taking and the importance of publishing accounts of unusual behavior in appropriate journals.

On the positive side, Dennis approaches bird behavior with great enthusiasm and leaves the reader prepared to watch for the unexpected. He emphasizes those aspects of bird study that are still poorly understood and invites readers to think seriously about the significance of the behavior they see in their own yards. Dennis gives his book wide appeal by including the experiences of bird students from all parts of the United States and from several foreign countries. Readers might get the impression, however, that he is partial to the Carolinas. Not only does Dennis refer to the writings of Arthur T.

Wayne, A.L. Pickens, John C. Watkins, Doris C. Hauser, and Eloise Potter but also he frequently mentions having lived in South Carolina, which he calls "one of the most beautiful and unspoiled of the southern states."

Anyone who is just beginning to develop an interest in bird behavior will find this book very helpful and enjoyable. More important than any scientific facts presented in *Beyond the Bird Feeder* is the author's point of view: The ability to recognize the birds attracted to your feeder combined with an informed curiosity about bird behavior enables you to study birds in depth from the comfort of your own home. And, of course, the keen awareness of behavior developed at the feeding station adds to the enjoyment of trips afield.—EFP

ANSWER TO PHOTO QUIZ

If you identified the owl on page 26 as a fledgling Screech Owl, you agree with the several experienced field observers who examined the photograph prior to publication. Note that the bird has not yet grown the ear tufts that are characteristic of adults and most juveniles of this species. The photograph was submitted by Henry Rankin Jr. of Fayetteville, N.C. Do you have bird pictures that illustrate identification problems? If so, please submit black-and-white prints to the Editor for use in future Photo Quizzes.

Carolina Bird Club
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The Chat

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OUR COVER—A Brown Pelican was photographed by David S. Lee as it was about to land on a piling. John Henry Dick drew a pelican (page 47) in almost the same position, particularly in regard to the feet and tail. Once more a photo documents the keen eye of the artist.

THIRD ANNUAL BREEDING BIRD FORAY: HOKE COUNTY, N.C.

MARY KAY CLARK and ELOISE F. POTTER

Between 25 and 30 May 1981 members of the Carolina Bird Club and the North Carolina State Museum of Natural History conducted the third annual Breeding Bird Foray near McCain, Hoke County, N.C. The 1700-acre site is on both sides of NC 211 at the town of McCain. Additional field work was conducted between 21 and 27 October 1981 by members and associates of the State Museum. Several brief trips were also made during 1981 primarily for inventorying mammals, but bird records were obtained at those times as well. Participants in the May 1981 Breeding Bird Foray include Alvin Braswell, Cindy Clark, John Funderburg, Peter Hertl, Tom Howard, David Lee, Steve Platania, John Watson, and the authors.

The 1981 Foray was part of a general, long-range floral and faunal survey of the McCain Tract. The property is owned by the State of North Carolina and administered by the State Farms Division of the Department of Agriculture and the North Carolina Biological Survey through a mutual agreement of understanding in response to concern over the preservation of Sandhills ecosystems and pocosins in the state. This area is the first in a series of Department of Agriculture properties to be surveyed and eventually managed for floral and nongame enhancement. These lands will also be used for long-range population studies and other types of field research conducted by the North Carolina State Museum of Natural History. The base-line information obtained during the study will provide a yardstick against which to measure the effects of long-range habitat management.

HABITAT DIVERSITY

Major vegetative types on the McCain Tract include pine-dominated communities, pine planatations, and a variety of wetlands. Elevations on the sandy site range from 290 to 520 feet above sea level. Plant community diversity can be attributed to the differences in elevation and the various wetland types. Six principal habitats were inventoried for breeding birds: Longleaf Pine – Turkey Oak – Wiregrass (*Pinus palustris – Quercus laevis – Aristida stricta*), Loblolly Pine (*P. taeda*) plantations, a Carolina Bay, creek-bottom hardwoods, and a Beaver pond and Cattail marsh. Miscellaneous ecotonal and successional habitats such as fields, utility rights-of-way, and road cuts were also covered.

The most extensive vegetative type is a typical Sandhills community, Longleaf Pine – Turkey Oak – Wiregrass (Fig. 1), which characterizes the high ridges on the property. A Longleaf Pine – Wiregrass savanna grows over a clay layer at the tract's highest elevation. Most of the pines in these communities are second growth, but much of the property has not been lumbered in over 80 years. Old flattops, often bearing scars (Fig. 2) from turpentine operations in the 1930s, are scattered throughout the stands. Longleaf Pine – Wiregrass swales occur along drainage ways in low areas.

Loblolly Pine plantations (Fig. 3) occupy the next highest percentage of area on the tract. The canopy is closed in these plantations as opposed to the open canopy of the Longleaf Pine communities. The understory is composed of some hardwoods and an abundance of honeysuckle.

The most distinctive feature on the property is a 5-acre Carolina Bay (Fig. 4) situated in the northwest corner. One of the few bays occurring in the North Carolina Sandhills, it is the only known clay-subsoil bay in state ownership. Jointweed (*Polygonella polygama*), uncommon in the Sandhills, grows in the sandy ridges that form the margins of the bay. Dense thickets of evergreen shrubs, predominantly Titi or Leatherwood (*Cyrilla racemiflora*), make entrance to the interior difficult. Growing

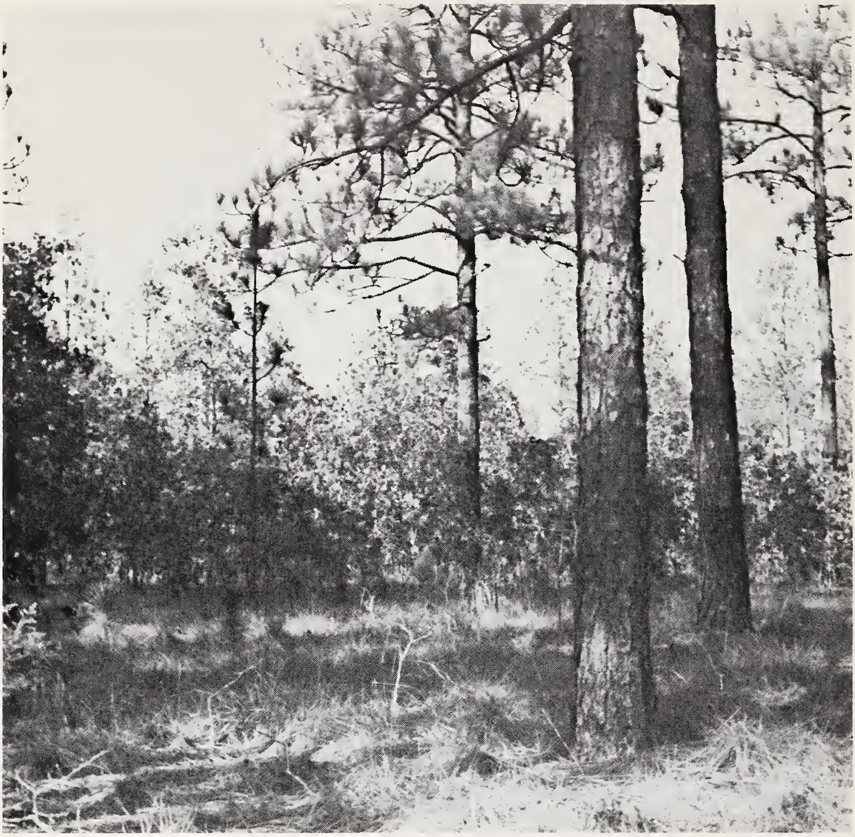

Fig. 1. Longleaf Pines, Turkey Oaks, and Wiregrass are characteristic plants on the high ridges of the McCain Tract in Hoke County, N.C. This typical Sandhills plant community is the most extensive vegetative type on the tract and prime habitat for the Red-cockaded Woodpecker. (Photo by Mary Kay Clark)

within the bay are small, scattered Bald Cypress (*Taxodium distichum*) as well as Sarvis Holly (*Ilex amelanchier*), Black Gum (*Nyssa sylvatica*), Fetter-bush (*Leucothoe recurva*), Red Maple (*Acer rubrum*), and Sphagnum (*Sphagnum* sp.).

Mountain Creek flows through the property, enhancing habitat diversity in several ways. Along the creek bottom is a dense zone of evergreen shrubs that occupy the ecotone between the uplands and a hardwood swamp. Scattered throughout this zone are a few clumps of the rare White Wicky (*Kalmia cuneata*), Slender Clubmoss (*Lycopodium cardini anum*), and a small population of Purple Pitcher Plants (*Saracenia purpurea*).

Found along the creek are a 2-acre Cattail marsh in an active Beaver pond and a man-made pond. Alders (*Alnus serrulata*) are common around the edges of the marsh.

(Text Continues on Page 34)

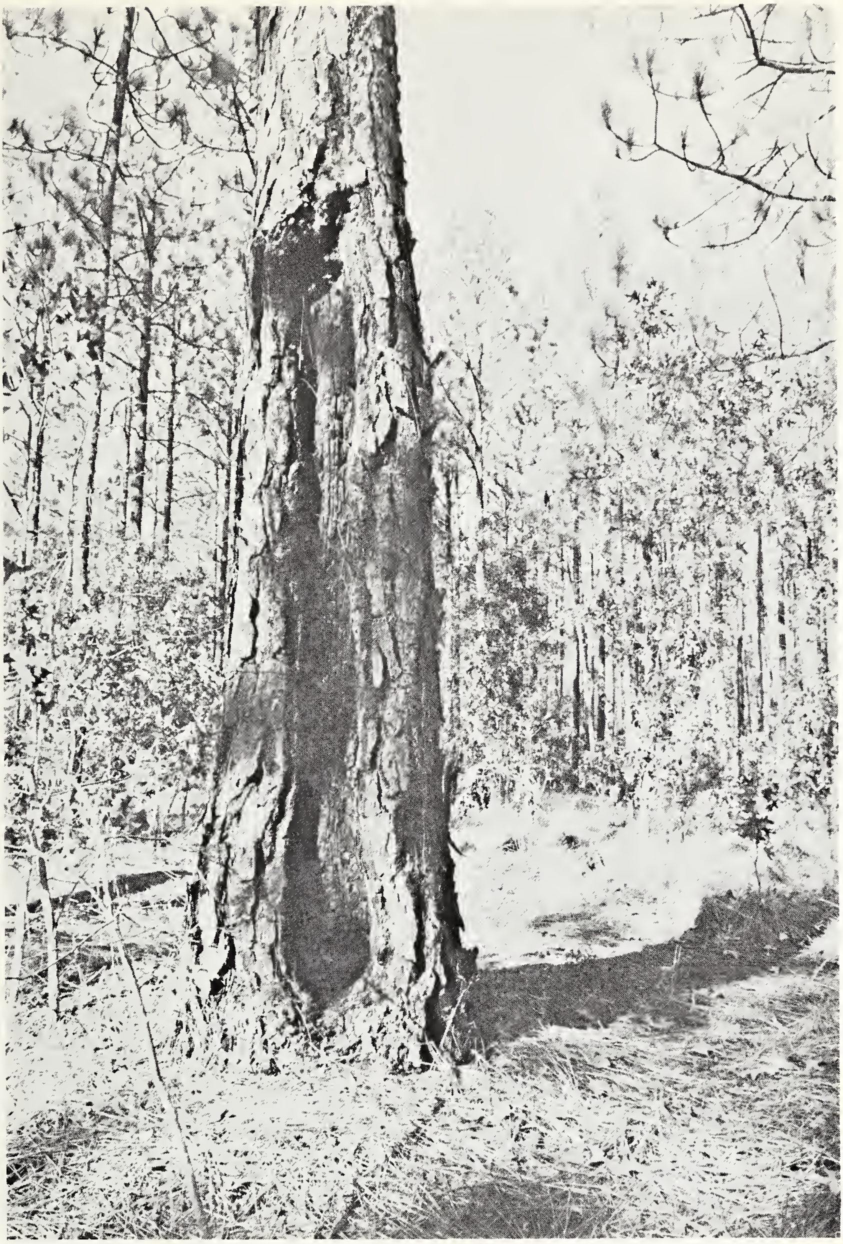

Fig. 2. Most of the McCain Tract has not been lumbered in over 80 years. The trunk of this old flattop bears scars from turpentine operations in the 1930s. Trees like this one are scattered throughout the Longleaf Pine stands. (Photo by Mary Kay Clark)

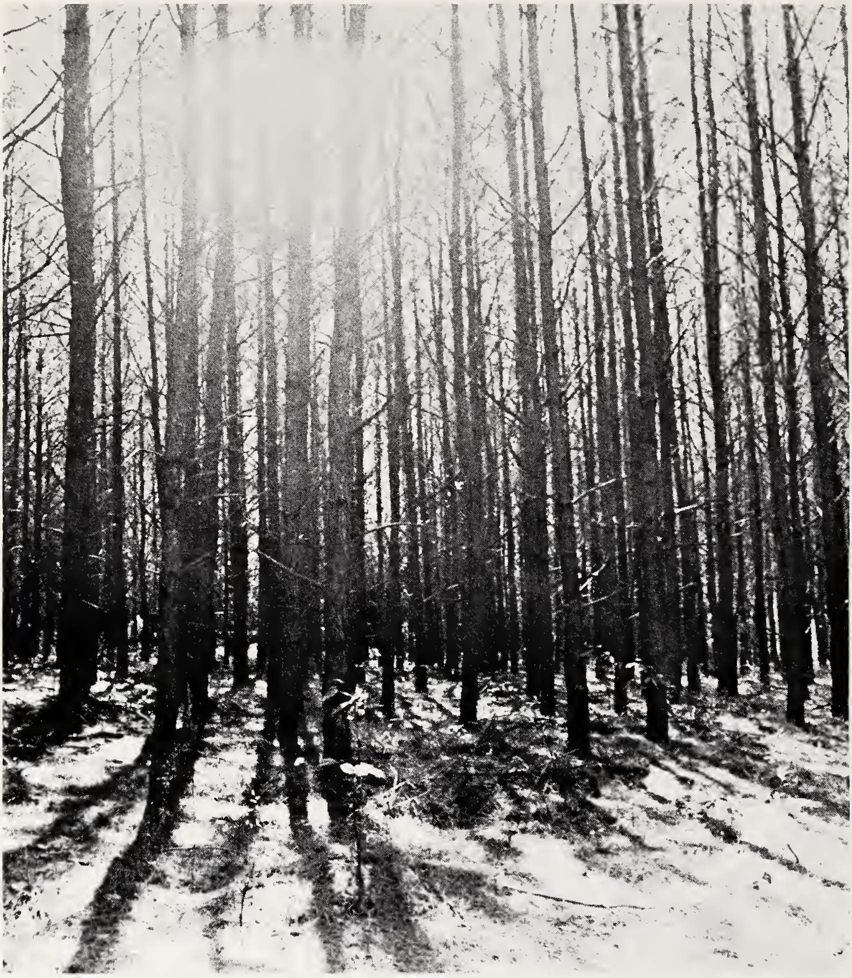

Fig. 3. A Loblolly Pine plantation on the McCain Tract has a closed canopy as opposed to the open canopy of the Longleaf Pine communities. (Photo by Mary Kay Clark)

Fig. 4 (at right). The Carolina Bay in the northwest corner of the McCain Tract is ringed by dense thickets of evergreen shrubs. Deciduous trees around and in the bay include Bald Cypress, Black Gum, and Red Maple. This bay is particularly interesting because of its clay subsoil. (Photo by Mary Kay Clark)

TABLE 1. Birds known or assumed to have nested in the McCain Tract, Hoke County, N.C., during the 1981 breeding season are listed below. An asterisk (*) following the name of the species indicates positive evidence of breeding. The six types of habitat surveyed are (1) Longleaf Pine - Turkey Oak; (2) Loblolly Pine; (3) Carolina Bay; (4) creek-bottom hardwoods; (5) lake, pond, and marsh; and (6) other, including fields, roadsides, and residential neighborhoods.

Species	*Habitat*					
	1	2	3	4	5	6
Green Heron*	—	—	—	—	X	—
Wood Duck	—	—	—	—	X	—
Turkey Vulture	—	—	—	—	—	X
Black Vulture	—	—	—	—	—	X
Red-tailed Hawk	X	—	—	—	—	X
American Kestrel	—	—	—	—	—	X
Bobwhite*	X	X	X	X	—	X
Mourning Dove*	X	X	X	X	—	—
Yellow-billed Cuckoo*	—	—	—	X	—	—
Great Horned Owl	X	—	—	—	—	X
Barred Owl	—	—	—	—	X	—
Chuck-will's-widow*	X	X	—	—	—	—
Whip-poor-will*	—	X	—	X	—	—
Common Nighthawk*	X	—	—	—	—	—
Chimney Swift	—	—	—	—	—	X
Ruby-throated Hummingbird	—	—	—	X	—	—
Belted Kingfisher*	—	—	—	—	X	—
Common Flicker*	X	X	—	—	X	—
Pileated Woodpecker*	X	—	—	X	X	—
Red-bellied Woodpecker*	—	X	X	—	—	—
Red-headed Woodpecker*	—	—	—	—	X	—
Hairy Woodpecker	—	X	X	X	—	—
Downy Woodpecker	—	X	X	X	—	—
Red-cockaded Woodpecker*	X	—	—	—	—	—
Eastern Kingbird*	—	—	—	—	X	X
Great Crested Flycatcher*	X	X	X	X	—	—
Acadian Flycatcher*	—	—	—	X	—	—
Eastern Wood Pewee*	X	X	—	—	—	—
Rough-winged Swallow	—	—	—	—	X	X
Purple Martin	—	—	—	—	—	X
Blue Jay*	—	X	—	—	—	—
Common Crow	—	—	—	—	—	X
Fish Crow	X	X	—	X	—	—
Carolina Chickadee*	X	X	X	X	—	—
Tufted Titmouse*	X	X	X	X	—	—
Brown-headed Nuthatch*	X	X	—	—	—	—
Carolina Wren*	—	X	X	X	—	—
Mockingbird	—	—	—	—	—	X
Gray Catbird*	—	X	X	X	—	—
Brown Thrasher*	—	—	X	—	—	—
American Robin*	X	—	X	X	—	X
Wood Thrush*	X	X	X	X	—	—
Eastern Bluebird	X	—	—	—	—	X
Blue-gray Gnatcatcher*	X	X	X	X	—	—
Starling	—	—	—	—	—	X
White-eyed Vireo	—	—	X	X	—	X
Yellow-throated Vireo*	X	X	—	X	—	—
Red-eyed Vireo*	X	X	—	X	—	—
Black-and-white Warbler	—	—	—	X	—	—
Prothonotary Warbler	—	—	—	X	X	—
Northern Parula	—	—	—	X	X	—
Yellow-throated Warbler	—	—	—	X	X	—
Pine Warbler*	X	X	—	—	—	—
Prairie Warbler*	—	—	—	—	—	X
Ovenbird	—	—	—	X	—	—
Kentucky Warbler	—	—	—	X	—	—
Common Yellowthroat*	—	—	—	X	X	—
Yellow-breasted Chat	—	—	X	—	—	—
Hooded Warbler*	—	X	X	X	—	—
American Redstart*	—	—	—	X	—	—
House Sparrow	—	—	—	—	—	X
Eastern Meadowlark*	—	—	—	—	—	X
Red-winged Blackbird*	—	—	—	—	X	X
Orchard Oriole	—	—	X	—	—	X
Common Grackle	—	—	—	—	X	X
Brown-headed Cowbird	X	X	—	—	—	—
Summer Tanager*	X	X	X	X	—	—
Cardinal*	—	X	X	—	—	—
Blue Grosbeak	X	—	—	—	—	X
Indigo Bunting	—	—	—	—	—	X
American Goldfinch	X	—	—	X	—	X
Rufous-sided Towhee*	X	X	X	X	—	—
Chipping Sparrow*	X	X	—	—	—	—
Field Sparrow	—	—	—	—	—	X
Bachman's Sparrow	—	—	—	—	—	X

A hardwood swamp forest (Fig. 5), with standing water resulting from Beaver activity, contains large dead trees that provide habitat for several species of woodpeckers.

BIRD LIFE

At least 75 species of nesting birds were observed on the property. Previously, Carter (1971) discussed the birds of the general Sandhills region but did not consider specific sites within the four-county area. The emphasis of this foray was to document avian breeding activity as related to the major vegetation types described in Table 1.

Represented among the birds of the McCain Tract are several species nesting at or near the southeastern limit of the presently known breeding range. These and a few other species require brief discussion.

Caprimulgids: All three caprimulgids nest on the property. Lee found a Chuck-will's-widow nest with two eggs on 26 May. Whip-poor-wills exhibited territorial behavior, but no nest was found. This is unfortunate, for to the best of our knowledge

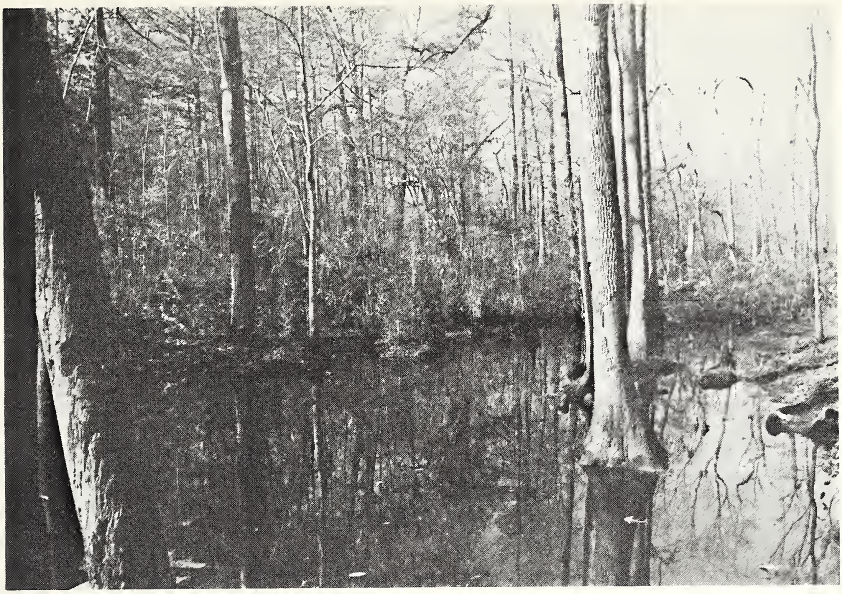

Fig. 5. Red-headed Woodpeckers are among the cavity-nesting species using the large standing dead trees in a portion of the hardwood swamp forest flooded by a Beaver dam. (Photo by Mary Kay Clark)

there is no documented breeding record of the species from the North Carolina coastal plain. Calling stations have been reported as far east as Gates, Bertie, Johnston, Cumberland, Moore, and Hoke Counties. The Common Nighthawk collected on 25 May 1981 (NCSM 8006) appears to be intermediate between *Chordeiles minor minor* and *C. m. chapmani.* The former race breeds in the mountains, most of the piedmont, and the northern part of the coastal plain, whereas the latter race is generally believed to breed "in the southern half of the coastal plain and neighboring margin of the piedmont region of North Carolina" (Pearson et al. 1959). The nighthawks exhibited territorial behavior in the open pine woods where they apparently nest on the sandy ground in the manner of the population found on the immediate coast northward at least to Carteret County.

Belted Kingfisher: An active nest burrow was discovered at a sandpit by Tom Howard.

Red-headed Woodpecker: This species was found only where Beaver ponds had created plots of large-diameter standing dead timber.

Red-cockaded Woodpecker: To date approximately 40 to 50 cavity trees have been located on the McCain Tract. Clearing of brush has begun in the vicinity of some active colonies where the understory was on the verge of becoming too tall and dense to meet the habitat requirements of the species.

Crows: Fish Crows were more numerous than Common Crows during the breeding season. We do not know when the Fish Crow began nesting in Hoke County. Carter (1971) commented that the species was already well established in the Sandhills when he collected the first local specimen in 1970.

Warblers: In addition to the warblers that are known to breed throughout the southern part of the North Carolina coastal plain, we found several species at or near the southeastern edge of their nesting range in this state. Additional field work is needed to determine the breeding status of the Black-and-white Warbler, Ovenbird, Kentucky Warbler, and American Redstart in the southeastern counties.

Summer Tanager: This species, which is frequently associated with pine-hardwood forests in the piedmont, was among the most numerous of the birds breeding in the pines of the McCain Tract.

Blue Grosbeak: Although we seemed to miss most of them, Mr. and Mrs. John Watson assure us that the Blue Grosbeaks are common in open habitats in the McCain area.

Rufous-sided Towhee: According to Blake (1961), the McCain Tract lies within a band of presumed intergradation between *Pipilo erythropthalmus rileyi*, of the South Carolina and southern North Carolina coastal plain, and *P. e. canaster* and *P. e. erythrophthalmus*, the other two races that breed in the Carolinas. An adult male (NCSM 8244) taken in late May had a very pale yellowish-white iris, which is considered typical of *P. e. rileyi* in spite of the fact that some individual adults may have orangish or reddish irides. This race is listed in some books written before publication of the 1957 A.O.U. *Check-list* as *P. e. alleni* and given the common name "White-eyed Towhee."

Bachman's Sparrow: Potter heard one singing several times from pines at the edge of a field, but she was unable to confirm the identification visually. The species is known to have bred in the county as recently as 1974 (Carter 1974).

Introductions: Only two introduced species were recorded. House Sparrows and Starlings visit the edges of the McCain Tract, but so far their breeding sites remain in developed areas adjacent to the property.

OTHER VERTEBRATES

Other vertebrate species recorded from the property include (*voucher specimens in the NCSM collections):

MAMMALS: Opossum (*Didelphis marsupialis*), *Carolina Short-tailed Shrew (*Blarina carolinensis*), Least Shrew (*Crypotis parva*), Southeastern Shrew (*Sorex longirostris*), Eastern Mole (*Scalopus aquaticus*), **Myotis* sp., *Eastern Pipistrelle (*Pipistrellus subflavus*), *Red Bat (*Lasiurus borealis*), *Eastern Cottontail (*Sylvilagus floridanus*), Marsh Rabbit (*S. palustris*), Gray Squirrel (*Sciurus carolinensis*), *Fox Squirrel (*S. niger*), *Southern Flying Squirrel (*Glaucomys volans*), Beaver (*Castor canadensis*), *Harvest Mouse (*Reithrodontomys humulis*), *White-footed Mouse (*Peromyscus leucopus*), *Cotton Mouse (*P. gossypinus*), *Golden Mouse (*Ochrotomys nuttali*), *Cotton Rat (*Sigmodon hispidus*), *Pine Vole (*Microtus pinetorum*), *House Mouse (*Mus musculus*), Red Fox (*Vulpes fulva*), Gray Fox (*Urocyon cinereoargenteus*), Raccoon (*Procyon lotor*), Bobcat (*Lynx rufus*), White-tailed Deer (*Odocoileus virgionianus*).

REPTILES AND AMPHIBIANS: Dwarf Waterdog (*Necturus punctatus*), Lesser Siren (*Siren intermedia*), Red-spotted Newt (*Notophthalmus viridescens*), Dusky Salamander (*Desmognathus fuscus/auriculatus*), Mud Salamander (*Pseudotriton montanus*), Red Salamander (*P. ruber*), Two-lined Salamander (*Eurycea* sp.), Dwarf Salamander (*E. quadridigitata*), Slimy Salamander (*Plethodon glutinosus*), Eastern Spadefoot (*Scaphiopus holbrooki*), Southern Toad (*Bufo terrestris*), Southern Cricket Frog (*Acris gryllus*), Green Treefog (*Hyla cinerea*), Southern Gray Treefrog (*H. chrysoscelis*), Spring Peeper (*H. crucifer*), Barking Treefrog (*H. gratiosa*), Bullfrog (*Rana catesbiana*), Bronze Frog (*R. clamitans*), Southern Leopard Frog (*Rana utricularia*), Snapping Turtle (*Chelydra serpentina*), Stinkpot (*Sternotherus odoratus*), Yellow-bellied Turtle (*Chrysemys scripta*), Eastern Box Turtle (*Terrapene carolina*), Green Anole (*Anolis carolinensis*), Northern Fence Lizard (*Sceloporus undulatus hyacinthinus*), Ground Skink (*Scincella lateralis*), Six-lined Racerunner (*Cnemidophorus sexlineatus*), Eastern Worm Snake (*Carphopis amoenus*), Black

Racer (*Coluber constrictor*), Ringneck Snake (*Diadophis punctatus*), Corn Snake (*Elaphe guttata*), Black Rat Snake (*E. obsoleta*), Eastern Mud Snake (*Farancia abacura*), Eastern Hognose Snake (*Heterodon platyrhinos*), Banded Water Snake (*Nerodia fasciata*), Southeastern Crowned Snake (*Tantilla coronata*), Eastern Cottonmouth (*Agkistrodon piscivorous*).

FISHES: Eastern Mudminnow (*Umbra pygmaea*), Redfin Pickerel (*Esox americanus*), Lake Chubsucker (*Erimyzon sucetta*), Yellow Bullhead (*Ictalurus natalis*), Pirate Perch (*Aphredoderus sayanus*), Mosquitofish (*Gambusia affinis*), Mud Sunfish (*Acantharchus pomotis*), Warmouth (*Lepomis gulosus*), Dollar Sunfish (*Lepomis marginatus*).

CONCLUSIONS

Although the above lists of vertebrate fauna for the McCain Tract must be considered preliminary, the bird list probably includes all of the locally common breeding species and most of the uncommon nesters. The success of the 1981 Breeding Bird Foray emphasizes the advantages of intensive field work by a team of experienced observers covering a small geographic areas for several consecutive days. Even when no rare birds are found, valuable base-line data can be compiled on habitat relationships and made available for future research projects, including studies of long-range habitat management practices.

LITERATURE CITED

Blake, C.H. 1961. Towhees in the Carolinas. Chat 25:22-24.

Carter, J.H. 1971. Birds of the central Sandhills of North Carolina. Chat 35:91-105.

Carter, J.H. 1974. Briefs for the Files: Bachman's Sparrow. Chat 38:98.

Crutchfield, P.J., C. Rankin Jr., and H. Rankin Jr. 1979. A Checklist of the Birds of Cumberland County, North Carolina. Fayetteville Audubon Society.

Pearson, T.G., C.S. Brimley, and H.H. Brimley. 1942. Birds of North Carolina. Revised 1959 by D.L. Wray and H.T. Davis. N.C. Dept. Agric., Raleigh.

North Carolina State Museum, Raleigh, N.C. 1 February 1982.

Backyard Birding

... with Gail T. Whitehurst

The cold, damp, miserable winter of 1981-1982 is nearly over as this is being written. For many folks it brought in some unusual birds to the backyard feeders. By far the most exciting visitor was the Goshawk seen by Dr. and Mrs. Walton C. Gregory of Raleigh. A complete write-up of this sighting appears below. A neighbor of mine only a few blocks away had, on different occasions, a Palm Warbler and two White-crowned Sparrows. We did not have any of these aberrant birds—just plenty of those to be expected, eating us out of house and home!

A Brazen Predator, the Goshawk

When we returned home in northwest Raleigh in May 1981, after several weeks' absence, we were surprised to find that a young game cockerel had taken up residence near our bird feeder, which had been kept supplied by a neighbor while we were away. Casually named Henry, the cockerel, showed little sign of domestication and when flushed, flew skillfully among the large pine boles of our 13-acre forested place. By October Henry was nearly full-sized, a proud-looking, beautiful bird of red-orange and black—irridescent to green and blue. M.P. immediately fell in love with Henry and by October had determined to visit the poultry exhibit of the North Carolina State Fair, where she talked an exhibiter of game fowl into giving her one of his prize pullets. After 2 days of through-the-wire acquaintanceship with Henry, the pullet was allowed to fly out to join her wild spouse. Wild as he, she stayed close by his side, under cover by day and on the same limb by night. We named her Mathilda.

Happy seemed the lot of Henry and Mathilda in warm full sunshine that slanted under their boxwood refuge. Then on gray 18 December we saw a large gray hawk rise from near the boxwoods. There lay Henry scattered and torn while his great predator brazenly perched front view on a low limb not 30 feet away. W.C. walked to within 40 feet of this hawk before it elected to move another 30 feet and a little higher. Its great gray wings looked, when spread, to be more than a meter from tip to tip. Perched profile view on its second perch, the bird showed its great head with a distinct white stripe over the eye.

The hawk returned to its kill, but we saw it only at a distance on 20 and 21 December. Mathilda, meantime, had disappeared. We thought that the great hawk had lifted her small body away. How wrong we were. She hid by day and visited the feeding area only in the darkest twilight of morning and evening. The hawk returned in morning twilight on 28 January when it perched so that M.P. was able to observe its white undertail coverts and to count five distinct gray undertail bars. We did not see

Mathilda for 6 days. At this writing (11 February 1982) she is still with us and still crepuscular.

We report this to be a sighting of the Goshawk in Wake County, N.C., on 18, 20, and 21 December 1981 and on 28 January 1982. We base this identification on the hawk's large size, dark gray color, whitish underparts, white eye stripe, white undertail coverts, long tail, and five gray undertail bars. Additional support for this report lies in the size of its kill, its brazen behavior, and the species of its kill.—WALTON C. GREGORY and MARGARET P. GREGORY, 3808 Blue Ridge Road, Raleigh, N.C. 27612.

Birding Tastes and Preferences in Felis domesticat

I'm sure Bird-lovers and Feliphiles (they are often the same) have watched and and wondered why the Housecat, ever the renowned Mouser, is always an even greater Birder, to the dismay of human birders as well as human cat-keepers. In the spring of 1981, I had to witness helplessly the successful stalk by a "stray," polite euphemism for a feral feline, of a group of four Gray Catbirds. (That's *Cat*-bird, Pussy, not *Cat's*-bird!) After a field of weeds was mowed, they were left with little cover. The alert feline just stood his ground, despite the birds' scolding, my bursting a paper bag and throwing gravel while advancing menacingly and shouting "SCAT," until one brave but foolish defender dared venture within the killing compass of his claws. One more lucky leonine luncher, and one less lucky catbird. "Why?" I wondered aloud, "Never a usurping Starling, an overabundant House Sparrow, nor ever a messy Rock Dove; always some naive, native songbird." (The only bird my carefully controlled Siamese cat ever caught was a big Common Flicker, the tell-cat-tale yellow shafts strewn like rose petals down the cellar steps, as if the guilty kitty were soliciting praise from her surprisingly unsympathetic owner.) Watching the behavior of the catbirds, I was intrigued by the apparent suicidal attitude of the territorial defenders who were willing to approach and try to drive away an enemy that was their nemesis. Why didn't they have sense enough to let the cat alone? Surely it could not climb into the fragile branches they could safely perch on out of reach. Or, were the birds not experienced enough to avoid the danger?

The housecat is out of its natural range in North America; no other predator on the catbird's nesting grounds closely resembles it in either size or propensity. Our native Bobcat, or Bay Lynx, is so large that small songbirds must be beneath its dignity. And when our native songbirds migrate to Mexico or Central and South America, they encounter only the chiefly nocturnal Margay and the Ocelot; again, too large to be serious threats to small game. In Europe, though, our imported nuisance birds have had the Eurasian Wildcat for a small predator model, and so may have learned to cope with a wild cat's wiles. Probably the catbird is the cat's bird, for it appears to have no instinctive fear of the housecat. This raises some interesting questions: At what point did the Gray Catbird learn to imitate the cat, a very effective deterrent to some avian enemies? Or does the bird really imitate the cat's "meow" at all? And does this call play into the cat's paws?—DANIEL M. WATSON, 107 A Hope Street, Greenville, S.C. 29601

Mr. Watson's observations and comments are interesting and entertaining. However, our experience with housecats and birds causes us to take exception to the premise that songbirds do not recognize the housecat as an enemy—at least not the birds that dwell in cities and suburban areas. When I was a child, my mother nearly always had a cat. My father was always concerned when any of these pets brought in a songbird. We noted that cats do not discriminate as to the kind of bird caught but go for whatever is easiest to catch. Here where I live, there are a number of cats roaming the neighborhood. They do make a catch from time to time (although they are well fed). I have seen a cat catch a House Sparrow and also a Starling as well as Rufous-sided Towhees, Cardinals, and other desirable (to me) songbirds. They take their greatest toll during the nesting season, robbing nests that are low to the ground and pouncing on fledglings. The adult birds do tend to "go after the cat" when their young are threatened—and some, such as the Blue Jay, Mockingbird, and Brown Thrasher, can succeed in their efforts to drive the cat away. Blue Jays are especially effective in an attack on a cat with their shrill cries and tendency to join forces to mob a predator. I always know when a cat is around because all of the birds (usually from safe perches) set up quite a fuss. The successful hunters are those which find a hiding place under cover of darkness, and patiently wait until an unsuspecting bird gets near, then spring quickly and make the kill. The neighborhood cats know where the birds hang out, and so I have a constant running battle with them, especially in spring. They have learned that they are "persona non grata" here and take their leave as soon as they see me and/or hear my slow "hiss." In heretofore published material in this department, I have commented on the fact that even the young fledglings appear to recognize and fear housecats and that they can discern the difference between a cat and a Gray Squirrel or Cottontail Rabbit.—GTW

More on the Brown Thrasher

In response to my article on the Brown Thrasher (Chat 45:93) came a letter from a South Carolina thrasher watcher.

"I have a long association with and many memories of this species. In 1959-1962, I kept a record of nests in my yard in Anderson, S.C. The density of nesting birds there was always amazing to me. We had 10 acres, 5 in pasture, with dense shrubbery all around the house and next to the fences. One year, I had five pairs of thrashers nesting there. I recall that I wanted to get photos of a nest in a Wisteria vine. The nest was about 4 feet from the ground, containing several nestlings a few days old. My friend who was to take the pictures was concentrating on the photography when one of the adult birds appeared and almost took his eye out!

"This present snow reminds of the first winter I lived here on my farm in upper Anderson County. I had just put a new load of gravel in front of the stable hallway. The ground was covered with snow, but a few feet of exposed gravel was free of snow just inside the stable. I watched a thrasher pick up pieces of gravel in his beak and sling them away (sometimes several feet) until he got down to dirt, where he either fed on something he had exposed, or was obtaining gravel."—ADAIR M. TEDARDS, Route 4, Box 70, Easley, S.C. 29640

Brazen Predator II

Backyard birding at our place has not been as much fun this winter due to frequent visits from a Sharp-shinned Hawk. She appeared almost daily and made a few kills. The birds here developed a bad case of paranioa. The slightest sound of a "hawk alarm" note had them all dashing for cover. There were times when even a small airplane high in the sky might trigger the alarm. All of the above is by way of background for the events that took place the afternoon of 11 February.

It was a day with mild enough temperatures to permit me to just sit in the yard and watch the birds. There is a Blue Jay here with the toes on its right foot permanently curled under. Because it is fairly tame, and crippled, I had been giving it some special goodies, bits of pecans in small enough pieces so it could handle them. I had just fed this bird, and it had flown into a nearby tree to rest and preen. I turned my head to look at something else when I heard the jay let out a most terrified scream. I turned back to see a very large accipiter going after it across the yard. Without taking time to think, I got up and ran at the hawk, "hissing" and clapping my hands (as I would at a cat). This did scare the hawk away. When I turned back to look for the Blue Jay, it was gone. A few

(Continued on Page 56)

CBC Roundtable

... with Louis C. Fink

Union Camp Acts to Preserve Camassia Slopes Along Roanoke River

North Carolinians and naturalists everywhere are assured protection of one of the most spectacular displays of rare wild flowers in the Southeast. On 16 April 1982, Union Camp Corporation, which manages about 1.7 million acres of woodlands in six southeastern states, officially donated the 176-acre Camassia Slopes Tract to The Nature Conservancy as part of the company's Corporate Land Legacy Program, which was established in 1975 to identify and preserve areas of special ecological or historical significance among its landholdings. To date, the company had donated nine major tracts in five states, totaling about 77,000 acres with an appraised value of more than $22 million. The Camassia Slopes Tract, which botanists describe as one of national significance, has an appraised value of about $130,000. Explaining the donation, Peter J. McLaughlin, president and chief executive officer of Union Camp, said, "As a forest products company, Union Camp has to manage its lands for the highest and best end use. In this case, the best use is to leave the property as is, preserving a delicate and unusual segment of the Roanoke River Basin."

Known as the Camassia Slopes because of the abundant growth of *Camassia scilloides*, or Wild Hyacinth, the acreage has an almost 100% ground cover of more than 24 species of wild flowers designated as endangered, uncommon, or rare in the coastal plain of North Carolina. Here the Wild Hyacinth is a disjunct species, isolated a significant distance from its normal range. It is ordinarily at home west of the Appalachians in midwestern river valleys and prairies.

J. Merrill Lynch, a biologist for the Natural Heritage Program, an agency of the North Carolina Department of Natural Resources and Community Development, discovered the unusual nature of Camassia Slopes in 1979. The site is about 20 miles SE of Roanoke Rapids, Lynch's home town. After tests showed that the soil was highly basic, as opposed to the acidic soil elsewhere in the Roanoke River Basin, it became clear that Camassia Slopes was more than a random collection of rare plants. The tract's entire ecosystem is highly unusual—typical of a midwestern river basin, but unlike anything else in the surrounding area. Lynch initiated the effort that ultimately led The Nature Conservancy to approach Union Camp regarding preservation of the tract. The Camassia Slopes Tract, now donated to The Nature Conservancy, will be managed by the state chapter of the national conservation organization.

Lynch states that 60 to 70 species of breeding birds occur on the tract, which offers a good diversity of woodland forest habitat. There are at least 10 nesting warbler species in addition to the one or two pairs of Ceruleans. Turkeys, Red-shouldered Hawks, Barred Owls, Hairy and Pileated Woodpeckers, and White-breasted Nuthatches also use the Camassia Slopes for nesting, feeding, or both.

Union Camp's largest land donations have been: 50,000 acres in the Great Dismal Swamp in Virginia, which became the core of the Great Dismal Swamp National Wildlife Refuge; 16,000 acres for incorporation into the Okefenokee National Wildlife Refuge in Georgia; 3,800 acres along North Carolina's Chowan Swamp for use as an environmental studies center; and 1,700-acre Turtle Island, the southernmost barrier island along the coast of South Carolina. For further information about the last site, see "The Birds of Turtle Island, S.C." by W. David Chamberlain (Chat 42:3-7).

Alder Flycatchers on Roan Mountain: A Clarification

I would like to comment on a statement made in the article "Bird Finding on Roan Mountain, Mitchell County, N.C." (Potter and LeGrand, Chat 44:32-36). On page 33, in the discussion of Alder Flycatchers, the authors mention the June 1970 reports of Traill's Flycatcher (Smith, Migrant 41:68-72). I talked to Glen Eller, one of the observers, and he said that these were Willow Flycatchers (*fitz-bew* song form) found along the creek that flows through the town of Roan Mountain (Tennessee side, elevation 2500 feet). This information should have been included in the original publication. Our first record of Alder Flycatchers in the Roan Mountain area came in June 1978, though we did receive an unverified report in 1977 from a hiker along the Appalachian Trail (see Lura et al., Migrant 50:34-36). So far, Roan Mountain is the only location in Tennessee where Alder Flycatchers have been found in the breeding season, though some spots in the Great Smoky Mountains National Park and elsewhere should be searched. Currently, I am planning to study the Alder Flycatchers on Roan Mountain for a Master's thesis.—RICK KNIGHT, 804 N. Hills Drive, Johnson City, Tenn. 37601

Cliff Swallows in Mountains: Additional Records and a Correction

Charles P. Nicholson, editor of *The Migrant*, writes in a letter dated 15 September 1981: "The nest record of Cliff Swallows at Fontana Dam (Chat 45:102) is very interesting. Last summer I had 10 Cliff Swallows on 19 June, which appeared to be 'prospecting' for nest sites—perching and flying about under the roadbed—at the bridge of US 129 over Tabcat Creek, about 5 miles above Chilhowee Dam. This is about 12 air miles from Fontana Dam, with Calderwood and Cheoah Dams in between. Both of these dams are fairly closed in; Fontana and Chilhowee seem much more suitable to Cliff Swallows. The swallows did not nest at Tabcat Creek bridge this year, and I've checked Chilhowee Dam for the past two years, with negative results. I wonder if the Fontana birds were the ones I saw at Tabcat."—CHARLES P. NICHOLSON, P.O. Box 402, Norris, Tenn. 37828

Jim McConnell, author of the field note mentioned above, calls to our attention an unfortunate typographical error in the quotation from Arthur Stupka's book regarding the status of the Cliff Swallow in the Great Smoky Mountains National Park. The species is an *un*common fall migrant there, not common. What a difference two little letters can make!—EFP

Sandwich Tern Recovery

"A summary of banded North American birds encountered in Europe" by John V. Dennis (North American Bird Bander 6:96-98) includes only one bird from the Carolinas. A Sandwich Tern banded at Cape Lookout 23 June 1978 was found dead in the Netherlands 6 months later, on 23 December 1978.

General Field Notes

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Brown Pelican on Inland Freshwater Impoundment

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Although records of pelicans on inland waters after severe coastal storms are not too unusual, records of impromptu visits, and especially of prolonged stays, appear to be rare. Such is the case of a single adult Brown Pelican (*Pelecanus occidentalis*) on Hope Mill Lake, which is located in the town of Hope Mills, Cumberland County, N.C.

This bird appeared at the lake late in July 1981 and continued to be seen there through September. Most of the day it perched in one of a number of cypress trees in a cove on the edge of the lake. High-powered motorboats that went by the perching area, frequently towing water-skiers, did not appear to disturb the animal significantly. It made fishing forays each day, sometimes among the fishermen and water-skiers. When fishermen encroached on the perching area, the animal simply left for another part of the lake.

I was first made aware of the presence of the pelican by Parley Rassmussen, a resident of Hope Mills, early in August. Later that month, I was approached by John Konen, who indicated that the pelican seemed encamped in an area across the lake from his home. My first observation of this animal was on 2 September, and the bird remained in the area through the last week of September. However, during the evening of 3 October there appeared an additional bird according to John Konen. These birds were last seen flying over the lake about sundown on 7 October.

There has been an impounded body of water supplying power for various textile mills in this area since the 1850s. The present dam was built in 1924 to impound water to supply electricity. Hope Lake Number 2, as it is called, is an acid warm-water impoundment, rather deep in comparison with most other bodies of water in the coastal plain. It includes approximately 150 acres of generally open water, and some 150 adjacent acres of swamps and tributary streams. The lake is some 80 to 90 miles inland from the southern coasts of North Carolina.

A Nanday Conure in Coastal North Carolina

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While covering our assigned area on the Bodie-Pea Island Christmas Bird Count in 1977, my wife Fran and I saw a parrot species unfamiliar to us. The bird was approximately 12 to 14 inches long with mandibles typical of a psitticiform. Its plumage was almost entirely dark green, appearing black when viewed at certain angles in the subdued ambient light. The face and remiges were noticeably darker than the rest of the body. Fran noted red plumage on the legs as the bird extended them in landing. The long pointed tail and wings were noted as the bird flew about and perched in a grove of mature Wax Myrtle (*Myrica cerifera*).

We first noticed the bird because of its raucous, screeching vocalizations, usually uttered during short flights. Clearly a strong flier, the solitary bird permitted us to approach no closer than 75 to 100 yards before taking wing. We watched the parrot for approximately 30 minutes with 10X binoculars during midday on 30 December 1977. The sky was overcast with intermittent light rain; the temperature was in the mid-40s. The site was the parking lot adjacent to the boat slips at the U.S. Coast Guard Station at the north end of Pea Island, Dare County, N.C.

The illustration in Forshaw and Cooper's *Parrots of the World* (1973) left little doubt that we had seen a Nanday Conure (*Nandayus nenday*). Further, the observed field marks matched well with a study-skin specimen in the scientific collection of the North Carolina Museum of Natural History (NCSM 5755).

Lisk and Crabtree (Am. Birds 28:11) document the occurrence of this conure, also known as the Black-hooded Parakeet, as a feral species in southern California and give strong circumstantial evidence of breeding there in the early 1970s. Several reports from the New York-New Jersey area indicate considerable nesting success of the Nanday Conure. A Brooklyn, N.Y., population grew from 8 in 1976 to 19 in 1978, including 2 immature birds (Am. Birds 35:2).

The North Carolina sighting documented here is unquestionably a bird of pet-trade origin, having been seen during the period when the species was breeding successfully in New York. Observers should be aware that temperate coastal areas appear to prolong survival of many non-native species introduced in the eastern United States by various means, both accidentally and deliberately.

Flying Squirrel Found Dead at Red-cockaded Woodpecker Cavity

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14 January 1982

Red-cockaded Woodpeckers (*Picoides borealis*) are known for excavating nest and roost cavities in living pine trees and for maintaining resin wells around the cavities. Various researchers have speculated that resin flow functions as a determent to potential predators and cavity competitors. Southern Flying Squirrels (*Glaucomys volans*) are major users of Red-cockaded Woodpecker cavities (Dennis 1971, Carter 1974, Jackson 1978), and they are not necessarily deterred by fresh, sticky resin (Dennis 1971). On 18 May 1974, I discovered a dead flying squirrel in the entrance tunnel of a Red-cockaded Woodpecker cavity. The cavity was in a second-growth Longleaf Pine (*Pinus palustris*) in an open, mature Longleaf Pine stand on the Fort Bragg Military Reservation, Hoke County, N.C. The cavity had been classed as active on 9 February 1974, with no plate, much fresh chipping, and much resin flow. It was 4.6 m high, and faced SSW. On 3 June 1974 the cavity showed additional fresh chipping by the Red-cockaded Woodpecker.

The squirrel was badly decomposed, and the entire ventral surface was mired in resin. The tail and hind legs protruded from the cavity entrance. When the suqirrel was removed, some matted, shredded vegetative matter was found in the entrance tunnel where the head had been. Flying squirrels construct their nests from such material. The squirrel appeared to have been entering the tunnel with nesting material when it became stuck.

This is apparently the only record of a flying squirrel being found stuck in the resin around a Red-cockaded Woodpecker cavity. An Eastern Bluebird (*Sialia sialis*) and a probable Pine Warbler (*Dendroica pinus*) have been found stuck in the resin flow on a cavity tree (Dennis 1971), and a Red-cockaded Woodpecker has been found stuck in sap in the entrance tunnel to its cavity (Locke, Conner, and Kroll 1979). In the latter case, the authors felt that the entrance tunnel was atypical in shape, allowing resin to pool on its floor. Though the shape of the tunnel was not specifically noted in my observation, the fact that the squirrel's entire ventral surface was fairly stuck to the tunnel floor suggests that sap had pooled there to some extent. I cannot state with absolute certainty that the squirrel died as a result of being mired in the sap, or that it was alive when it became stuck. It is possible that the squirrel died in the cavity and was left in the tunnel by another animal trying to eject it. However, the squirrel's posture in the tunnel left the impression that it died while struggling to enter the cavity.

LITERATURE CITED

Carter, J.H., III. 1974. Habitat Utilization and Population Status of the Red-cockaded Woodpecker in South-Central North Carolina, M.S. Thesis, Dept. Zoology, N.C. State Univ., Raleigh.

Dennis, J.V. 1971. Species using Red-cockaded Woodpecker holes in northeastern South Carolina. Bird-Banding 42: 79-87.

Jackson, J.A. 1978. Competition for cavities and Red-cockaded Woodpecker management. Pages 103-112 in Endangered Birds, Management Techniques for Preserving Threatened Species (S.A. Temple, ed.), Univ. Wisconsin Press, Madison.

Locke, B.A., R.N. Conner, and J.C. Kroll. 1979. Red-cockaded Woodpecker stuck in cavity entrance resin. Bird-Banding 50: 368-369.

Mortality Rates in Nesting Purple Martins

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Breeding individuals of the California Condor (*Gymnogyps califorianus*), particularly pairs foraging together, reportedly gain first access to available food (C.B. Koford, The California Condor, Dover Press, New York, 1966). Thus Koford reasoned that the reproducing segment of the population was the most fit in terms of ability to garner and hold resources. One could further hypothesize that the effective portion of a given population of organisms—the breeders—are the most fit from a physical and pyschological standpoint. Further, it is likely that survival during the breeding season is high for those individuals gaining access to the resources required for reproduction.

The Purple Martin (*Progne subis*) seems ideally suited for use in testing such an hypothesis. The birds nest in colonies near human habitation, and they are site-tenacious once a pair selects a nesting compartment. I have constructed a table that records the mortality of nesting birds in my martin colony in Raleigh, N.C., from 1959 through 1979. Causes of mortality are given where appropriate, and mortality was assumed when one, or more, of a pair disappeared after nesting had commenced. Thus the estimates given are maximum estimates. Observations cover only the period when the birds were nesting. Information on parental survival during the period of post-nesting care of the young is not available.

Total mortality for the 21-year period was 12 birds for an average mortality rate of 2.3%, very low considering the early arrival of adult birds, usually in March, the toll of territorial combat, indulged by both sexes, and the stresses from rearing large broods.

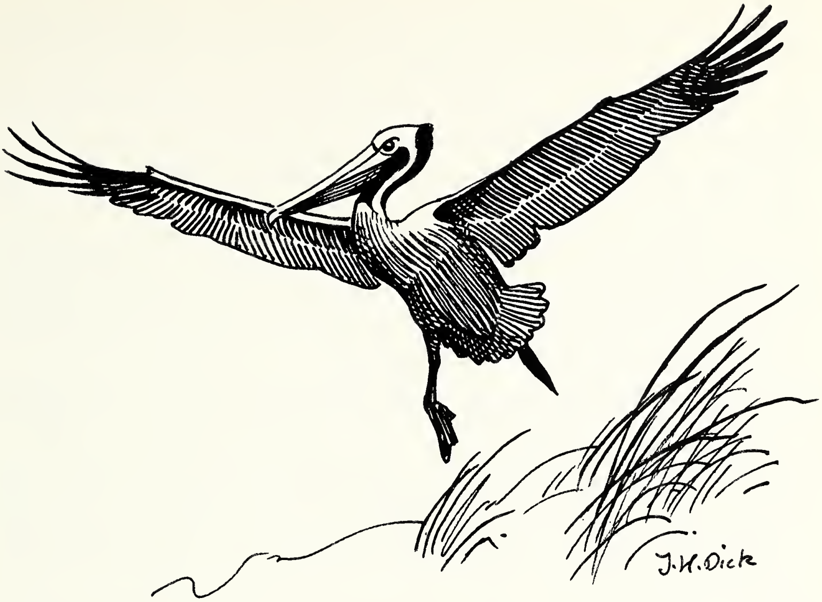
Table 1. Mortality rates of nesting Purple Martins at Raleigh, N.C., 1959-1979.

Year	*No. pairs*	*% Mortality*	*Losses*
1959	6	0%	None
1960	12	0%	None
1961	16	6%	One female suffered broken wing; another killed by a cat.
1962	20	5%	Two females disappeared after eggs had hatched; each surviving male reared out two young.
1963	20	5%	One male found in an emaciated, moribund condition on ground; another killed by cat.
1964	16	6%	Two females found dead on nests.
1965	14	4%	One male killed by a cat.
1966	12	0%	None
1967	10	0%	None
1968	9	0%	One female disappeared during nesting season.
1969	7	0%	None
1970	10	0%	None
1971	9	6%	One male killed by a cat.
1972	11	0%	None
1973	12	0%	None
1974	12	0%	None
1975	12	4%	One female found dead on nest.
1976	9	0%	None
1977	12	0%	None
1978	12	0%	None
1979	12	0%	None
Pairs	253	Avg.	
Individuals	506	1.3%	Total birds lost = 12

Predation by cats accounted for about half the losses, and such mortality is doubtfully related to the general condition of the birds. Martins are extremely vulnerable when on the ground, as when gathering nesting material, or when males fall to the ground in combat.

Mortality was greatest when the colony was largest. Considering the low rate of mortality from all causes, that might have been merely a matter of sampling deviation. Once the colony began declining in the number of nesting pairs, I began limiting the number of nesting compartments (gourds) to 12. Recently the colony has stabilized around the maximum space available, an average of about 10 pairs of adults birds, plus 1 or 2 pairs of subadults, per year. Since the colony has become reduced in size, fighting among the males seems to be much less, and the rate of abandonment of nests by subadults has dropped to zero. Perhaps conditions in modest-sized colonies are less stressful on inhabitants than in large ones.

I have recorded about a 30% rate of recruitment per year for 2-year-old males in the colony. Males of this age class can be identified by the white stripe on either side of the black venter. Assuming site-tenacity of males, once the birds have nested in a given colony, the 30% recruitment rate must be a replacement rate. Therefore there is the likelihood that relatively young, though mature, martins are the most fit of the population available for reproduction for a pending season. The rigors of migration must be severe on the young and the aging. Results of 20 years of observation at Raleigh show that the survival of nesting Purple Martins, at least in one colony, is high. Therefore most of the mortality of adult birds must occur during the nonreproductive period.



BRIEFS FOR THE FILES

HARRY E. LeGRAND JR.

(All dates 1981 unless otherwise indicated)

COMMON LOON: Very rare inland in summer was an individual seen on 6 August 1977 on Lake Robinson, Chesterfield County, S.C., by John Castrale and party. Two seen by Steve Graves were early at Jordan Reservoir, eastern Chatham County, N.C., on 10 October.

HORNED GREBE: Members of the Chapel Hill Bird Club noted an early grebe on 26 September in eastern Durham County, N.C.

PELAGIC OBSERVATIONS: John Bazuin spent the period from 3 to 16 September at least 40 miles offshore, between Cape Hatteras, N.C., and the Virginia line. Grand totals of pelagic species within 100 miles of shore were 718 Cory's Shearwaters, 13 Greater Shearwaters, 455 Audubon's Shearwaters, 30 Black-capped Petrels, one Leach's Storm-Petrel (11 September), 134 Wilson's Storm-Petrels, 1 White-tailed Tropicbird (5 September approximately 75 miles E of Cape Lookout), 4 phalaropes (sp. ?), 1 Parasitic Jaeger (6 September), and just 1 Bridled Tern. Other birds seen were 8 early White-winged Scoters on 6 September; 2 Red-breasted Nuthatches on 9 September (81 miles E of Oregon Inlet); and 4 Cape May Warblers, 2 Black-throated Blue Warblers, 4 Black-throated Green Warblers, a Northern Waterthrush, and a Northern Oriole on 10 September (all 85+ miles E of Oregon Inlet).

SOOTY SHEARWATER: Rare in fall was one seen off Hatteras, N.C., on 5 September by Paul DuMont and party.

AUDUBON'S SHEARWATER: Two disabled birds were found on the beach at Bogue Banks, N.C., in late July and early August by Brainard Palmer-Ball.

BLACK-CAPPED PETREL: This species was observed on all four of the Ake-DuMont pelagic trips out of Hatteras: 10+ on 6 September, 20+ on 5 September and 18 October, and 82 on 11 October.

LEACH'S STORM-PETREL: One was noted by Paul DuMont and party off Hatteras on 6 September.

WHITE PELICAN: What was likely a single individual was observed at three sites in the Charleston, S.C., area in October by Sidney Gauthreaux, Harry LeGrand, Perry Nugent, and others.

BROWN PELICAN: An excellent count was 100+ birds at the northern edge of the range at Whalebone Junction, N.C., on 22 October (Jim and Elizabeth Pullman).

BLUE-FACED BOOBY: An adult was present at a Brown Pelican nesting colony in the lower Cape Fear River, N.C., all summer, and it was last seen on 3 October by Greg Massey. Ricky Davis and Bud Needham have submitted a note and photograph for publication in a national journal.

GREAT CORMORANT: Quite rare for Carteret County, N.C., was an immature noted by Helenhill Dove near Cape Lookout on 2 November.

DOUBLE-CRESTED CORMORANT: Unusual for the mountains was a cormorant seen on a high-tension cable tower at Lake Julian, near Skyland, N.C., on 8 November (Roland Sargent, Jerry and Ruth Young). Two were seen at Jordan Reservoir by Steve Graves on 10 October; and John Fussell noted this species regularly during the summer on the Neuse River near Croatan, N.C., with a peak of 22 on 14 August.

ANHINGA: A good piedmont find was an individual at Pee Dee National Wildlife Refuge, N.C., on 30 July (Douglas McNair). Other records of note in North Carolina were four at an impoundment in southeastern Jones County on 13 August (John Fussell, Merrill Lynch, Lance Peacock), and one until 22 September near Fayetteville, where breeding may be taking place (Philip Crutchfield).

MAGNIFICENT FRIGATEBIRD: Gary Williamson observed an immature over the US 64 bridge at Roanoke Sound, N.C., on 15 June.

CATTLE EGRET: Very late inland was an egret in a field near Piedmont, Anderson County, S.C., on 1 December, as seen by Phillip Waggett.

SNOWY EGRET: Two were seen by Sidney Gauthreaux and others in western Anderson County, near Fairplay, S.C., from 23 August to 6 September; and Allen Bryan saw another near Burlington, N.C., from 8 to 20 September.

LOUISIANA HERON: In inland North Carolina were individuals at two sites near Fayetteville on 15 and 18 August (Philip Crutchfield), near Beaverdam Reservoir in northern Wake County on 29 August (Steve Graves, Bill and Margaret Wagner), and near Burlington from 30 August to 20 September (Allen Bryan).

BLACK-CROWNED NIGHT-HERON: Notable inland was an immature seen by Philip Crutchfield near Fayetteville on 26 August.

GLOSSY IBIS: One was rare near Fayetteville on 23 October, as noted by Philip Crutchfield, who also reported three late birds in impoundments in Pamlico County, N.C., on 15 November.

WHITE IBIS: The first good nesting evidence for this ibis at the Emerald Isle, N.C., heronry was a juvenile with two adults on 7 August (John Fussell).

MUTE SWAN: Perhaps "wild" were two seen at Avon, N.C., on Pamlico Sound on 1 August, by Vicki Little.

WHISTLING SWAN: Bill and Margaret Wagner noted four adults on Jordan Reservoir on 22 November.

CANADA GOOSE: Two were early at Pee Dee refuge, N.C., on 24 September

(Douglas McNair).

WHITE-FRONTED GOOSE: An immature was seen by Derb Carter at Pea Island National Wildlife Refuge, N.C., on 3 December.

AMERICAN WIGEON: Exceptionally early were five seen on Santeetlah Lake in Graham County, N.C., by Jim McConnell on 16 August. A good count of 200 was made by Steve and Maurice Graves on 28 November at Umstead State Park, N.C.

NORTHERN SHOVELER: Rather early inland was one in eastern Durham County on 12 October (Bill and Margaret Wagner).

REDHEAD: David Barnes and party observed five early individuals at Jordan Reservoir on 17 October.

GREATER SCAUP: Uncommon were five at Jordan Reservoir on 30 October, as noted by Bill and Margaret Wagner.

COMMON GOLDENEYE: Two males and a female were seen by Bill and Margaret Wagner on 23 November at Jordan Reservoir.

OLDSQUAW: An exciting find was six birds at Jordan Reservoir on 10 November (Bill and Margaret Wagner).

RUDDY DUCK: Very early were six seen by Robert Clark and Jack Dermid on 14 September at Fort Fisher, New Hanover County, N.C.

BLACK VULTURE: Noteworthy in the mountains were two near Fairview, Buncombe County, N.C., on 7 September (Robert Ruiz, Jerry and Ruth Young).

MISSISSIPPI KITE: A first record for Dare County, N.C., was an adult observed at Buxton Woods on 6 October by Greg Hanisek.

GOLDEN EAGLE: Adults were seen on 30 September at Catawba, York County, S.C. (June Conway), and at Swannanoa, N.C., on 22 October (Robert Ruiz).

BALD EAGLE: In addition to several reports from Beaverdam and Jordan reservoirs in North Carolina, where the species has been seen frequently in the past several years, other reports in the state were: an immature at Lake Surf, near Vass, on 20 August (Jay Carter, Tom Howard), an adult in southwestern Fort Bragg on 16 and 18 September (Carter, R.T. Stamps), an immature in the lower Cape Fear River during September and October (Greg Massey), and an adult near Southport on 22 October (Carter).

MERLIN: A good tally of migrating Merlins was 21 in 1.5 hours at Edisto Beach State Park, S.C., on 28 September (Mike Homoya). Birds seen inland in South Carolina were at Clemson on 25 September and 11 October (Sidney Gauthreaux et al.) and near Fairplay on 20 September (Gauthreaux, Harry LeGrand, et al.); and in North Carolina at Jordan Reservoir on 16 September (Bill and Margaret Wagner, Johnnie Payne), near Burlington on 3 October (Allen Bryan), at Chapel Hill on 4 November (Wagners), and near Godwin in Cumberland County on 15 September and again 6 days later (M.E. Whitfield, Philip Crutchfield).

SANDHILL CRANE: Highly unusual for central North Carolina was a crane seen at a gravel-pit pond a few miles west of Lillington, N.C., by Tommy Wagoner, Megan Lynch, Tom Howard, and others from early November through 19 December.

BLACK RAIL: Steve Graves saw one at a pond at Bodie Island, N.C., on 19 October.

COMMON GALLINULE: A rare inland migrant was seen by Douglas McNair at Andrews Pond in northwestern Richmond County, N.C., on 19 September.

AMERICAN COOT: An excellent count was 1000 at Jordan Reservoir on 21 November, as reported by Steve Graves.

AMERICAN AVOCET: The species is rare in North Carolina away from the Bodie-Pea Island area; thus, noteworthy were nine at an impoundment in Pamlico

County on 15 November (M.E. Whitfield, Philip Crutchfield), a peak of four at Davis from 5 to 13 August (John Fussell et al.), one at Beaufort on 20 October (Fussell), three at Cedar Island on 1 November (Fussell), and two on the lower Cape Fear River on 12 September (Ricky Davis).

WILSON'S PLOVER: Good post-breeding counts of 110 on 10 August and 120 on 2 September were made by John Fussell at Bird Shoal near Beaufort, N.C.

PIPING PLOVER: First records for the Clemson, S.C., area were one in breeding plumage on 23 August, one in winter plumage on 6 September, and a different bird in winter plumage from 20 September to 15 November, all seen on Lake Hartwell near Fairplay by Harry LeGrand, Sidney Gauthreaux, and others.

AMERICAN GOLDEN PLOVER: Five were observed near Fairplay on 18 October by Sidney Gauthreaux, Harry LeGrand, and party. In North Carolina were four at Bodie Island on 23 October (Jim and Elizabeth Pullman), two at Lake Surf on 14 November (Tom Howard), singles at New Topsail Inlet on 2 September (Ricky Davis) and at Jordan Reservoir on 17 October (Bill and Margaret Wagner), and different birds at North River near Beaufort on 21 October and 2 November (John Fussell).

BLACK-BELLIED PLOVER: Rather rare inland was one in eastern Durham County where I-85 crosses the Neuse River, on 14 October, as noted by Bill and Margaret Wagner.

UPLAND SANDPIPER: The New Hanover County Airport is apparently the best spot in North Carolina to look for this species, as Ricky Davis had a peak tally this fall of 46 on 20 August. Of interest inland were five seen by Evelyn Dabbs near Sumter, S.C., on 19 August.

GREATER YELLOWLEGS: Late sightings were one near Fayetteville on 10 November (Philip Crutchfield), four near Fairplay on 15 November (Sidney Gauthreaux et al.), and three east of Durham on 5 and 6 December (Jim McConnell).

LESSER YELLOWLEGS: Two seen by Jim McConnell in eastern Durham County were very late on 5 and 6 December.

WILLET: A good inland find was a Willet at Wallace, Marlboro County, S.C., on 3 August, as reported by Douglas McNair.

RUDDY TURNSTONE: Individuals were observed at a sewage treatment plant at Winston-Salem, N.C., from 5 to 7 September by Royce Hough and others, and east of Durham on 12 September by Andy Towle.

WILSON'S PHALAROPE: Notable for Carteret County were two to four at Davis from 2 to 13 August and two at North River on 13 August (John Fussell et al.).

SHORT-BILLED DOWITCHER: Uncommon inland were one at the Falls of the Neuse Lake dam, Wake County, N.C., on 29 August (Steve Graves, Bill and Margaret Wagner); two near Fairplay on 6 September, with one there on 13 September (Alan Avakian, Jeff Beacham, et al.); and two at Winston-Salem from 6 to 7 September (Jim and Pat Culbertson, et al.).

SANDERLING: Jim and Pat Culbertson saw one at the Winston-Salem sewage treatment plant on 5 September.

WESTERN SANDPIPER: One was very late near Fairplay on 1 November, as noted by Sidney Gauthreaux.

LEAST SANDPIPER: Jim McConnell saw seven late Leasts east of Durham from 4 to 6 December.

WHITE-RUMPED SANDPIPER: At least 12 was a good count on 22 October at Bodie Island, as seen by Jim and Elizabeth Pullman. Quite rare inland in fall were three noted by Royce Hough, Ramona Snavely, and Bob Witherington at

Winston-Salem on 6 and 7 September.

BAIRD'S SANDPIPER: The only fall reports were of individuals at the Wright Brothers Memorial at Kill Devil Hills, N.C., on 5 September (Steve Graves) and near Fairplay on 6 September (Harry LeGrand).

DUNLIN: Twenty were counted by Sidney Gauthreaux and Harry LeGrand near Fairplay on 1 November, and two were noted by Steve Graves at Jordan Reservoir on 24 October.

CURLEW SANDPIPER: Rare and apparently the latest ever for North Carolina was an individual in winter plumage carefully studied by Jim and Elizabeth Pullman at the Bodie Island lighthouse pond on 22 October.

STILT SANDPIPER: An excellent count away from the North Carolina Outer Banks was 150+ at Davis on 7 August (Brainard Palmer-Ball). Noteworthy inland was one at Winston-Salem on 5 to 7 September (Jim and Pat Culbertson et al.) and another near Durham on 12 September (Andy Towle).

BUFF-BREASTED SANDPIPER: The only inland report was of four near Fairplay, as seen by Sidney Gauthreaux, Harry LeGrand, and party on 30 August. Coastal reports were of one at the Wright Brothers Memorial at Kill Devil Hills on 23 August (Bob Lewis) and four there on 10 September (Herb Wilson), one on an island in the lower Cape Fear River on 12 September (Ricky Davis, Robert Ake, et al.), and one at Bodie Island on 3 and 10 October (Wilson).

RUFF: An excellent find was a male with some trace of breeding plumage at a rain pool at Cape Hatteras point, N.C., as noted by Steve Graves on 5 September.

PARASITIC JAEGER: Out of place was one seen by Herb Wilson as it chased a Herring Gull over the Bodie Island lighthouse pond on 10 October. Ricky Davis noted a light-phase Parasitic at Carolina Beach, N.C., on 27 November.

GLAUCOUS GULL: Unusual for the summer months was an immature observed at Pea Island on 1 August by Luise and Breton Ely.

GREAT BLACK-BACKED GULL: A good count for early fall was 415+ from the Cedar Island, N.C., ferry on 18 September (Ricky Davis, Jim Parnell, Bud Needham).

BLACK-LEGGED KITTIWAKE: One was noted off Hatteras on the early date of 11 October by Paul DuMont and party, and an adult was seen over the breakers at Fort Fisher on 14 November by Ricky Davis.

FORSTER'S TERN: Bob Lewis counted 186 at Lake Marion, S.C., on 29 August, and Bill and Margaret Wagner noted one at Beaverdam Reservoir on 7 September.

COMMON TERN: Inland sightings were three at Lake Surf on 6 August (Douglas McNair), three at Lake Marion on 29 August (Bob Lewis), and one at Kerr Scott Reservoir in Wilkes County, N.C., on 7 September (Tom Haggerty).

ROSEATE TERN: Three were rare on a sand spit near Masonboro Inlet at Wrightsville Beach, N.C., as seen by Greg Massey and Jim Pearson on 9 August.

CASPIAN TERN: Seven were seen by Bob Lewis at Lake Marion on 29 August, and Allen Bryan observed two at Lake Cammack, near Burlington, on 19 October.

BLACK TERN: Inland sightings were 20 near Fayetteville on 10 August (Philip Crutchfield), two at Jordan Reservoir on 17 August (Ricky Davis), three at Lake Surf on 20 August (Jay Carter, Tom Howard), three at Lake Marion on 29 August (Bob Lewis), and one near Fairplay on 6 September (Alan Avakian, Harry LeGrand, et al.).

BROWN NODDY TERN: Louise Lacoss noted a dark tern with white on top of the head, at Port Royal Sound, adjacent to Hilton Head Island, S.C., on 21 July. The bird was presumably this species of noddy tern.

DOVEKIE: One was a good find between 35 and 40 miles S of Beaufort Inlet, N.C., on 6 November, as made by Wayne Irvin. It has been at least 15 years since a flight of this species has been detected in the Carolinas.

MOURNING DOVE: Tom Haggerty reported that a pair of doves that he discovered nesting near Four Oaks, N.C., in October 1980 fledged two young on the extremely late date of 19 November.

BLACK-BILLED CUCKOO: Rare near the coast were individuals seen at an island near Beaufort, N.C., on 19 September by Tom Haggerty and at Santee Coastal Reserve, S.C., on 11 October by Phyllis Bell and Mitch Feller.

BARN OWL: Lex Glover found a nest near Columbia, S.C., in an abandoned house in September, as well as a nest in a tree only 200 yards away. The nest in the house produced four young; the tree nest produced three. Glover also hand-reared several more young from a nest found in October in a Columbia junkyard.

SNOWY OWL: The first South Carolina record in many years was an immature male present in Whitmire, seen perched on buildings, from 14 to 24 November. The sickly owl was captured on the 24th by wildlife personnel, but it died shortly afterward, according to John Cely. The bird is now a specimen at Clemson University.

LONG-EARED OWL: Greg Massey heard one in pinewoods near the University of North Carolina—Wilmington campus on 22 and 23 September. [As this species and the Saw-whet Owl are quite rare in the Carolinas, birders should attempt visual corroboration of all suspected vocalizations of these two species. Such confirmation is important because certain calls of the adults and/or juveniles of the much more common Great Horned, Barred, and Screech Owls can be confused with those of the rather silent (on the wintering grounds) Long-eared and Saw-whet Owls.—HEL]

SHORT-EARED OWL: Lex Glover flushed two from dunes at Huntington Beach State Park on 21 November and found another at North Island, S.C., on the following day.

CHUCK-WILL'S-WIDOW: The species is infrequently reported in fall; of interest were one calling on 10 September at Rockingham, N.C. (Douglas McNair), and one seen at Rock Hill, S.C., on 30 September (Albert and June Conway).

COMMON NIGHTHAWK: Good coastal-plain counts were 105 seen by Douglas McNair at Hoffman, Richmond County, N.C., on 24 August, and 160 seen (in one hour) migrating south at Carolina Beach on 12 August by Ricky Davis.

RED-BELLIED WOODPECKER: One heard calling in Boone, N.C., on 6 September by Tom Haggerty was his first personal record for Watauga County.

WESTERN KINGBIRD: Single birds, all along the coast, were found on 10 September at Cape Lookout, N.C. (Skip Prange); on 12 September at Fort Fisher (Ricky Davis); on 4 October at Sullivans Island (Sidney Gauthreaux, Harry LeGrand); on 17 October at Frisco, N.C. (Jim and Elizabeth Pullman); and on 24 October at Pea Island (Pullmans).

SCISSOR-TAILED FLYCATCHER: Always exciting was one seen well at Cape Hatteras point on 17 October by Stuart Tingley and others.

YELLOW-BELLIED FLYCATCHER: The seven fall reports from North Carolina were likely a record number for a single season. Individuals were noted at Lake Cammack near Burlington on 13 September (Allen Bryan), at Raleigh on 18 September (Gail Whitehurst), at Ocracoke Island on 19 September (Ricky Davis, Jim Parnell, Bud Needham), near Chapel Hill on 25 September (Bill and Margaret Wagner), at Wilmington on 25 September (Greg Massey, Kitty Kosh), in northern Cumberland County on 28 September (two birds—Philip Crutchfield), and at Carolina Beach on 3 October (Massey, Mark Galizio, Jane Brackett).

LEAST FLYCATCHER: Bill and Margaret Wagner saw individuals in the Chapel Hill area on 12 and 19 September.

TREE SWALLOW: A good inland count for the fall was 50 noted by Steve Graves and party at Jordan Reservoir on 24 October.

BANK SWALLOW: Tom Haggerty reported a flock of approximately 1500 swallows near Four Oaks, N.C., on 29 August. He estimated that half of the flock (750 birds) were Banks, and the others were Barns, with the exception of single Tree and Cliff swallows.

CLIFF SWALLOW: Uncommon for the coast was one seen by Ricky Davis at Sunset Beach, N.C., on 13 September.

PURPLE MARTIN: One near Boone on 5 September was a rare find for Watauga County (Tom Haggerty). Fairly late were 12 seen by Greg Massey at Wilmington on 12 September, and exceptionally late was a female or immature seen near Fayetteville on 26 October by Philip Crutchfield.

BROWN-HEADED NUTHATCH: One to two were seen on numerous occasions by Bill Duyck in his yard in Asheville, N.C., during late October and November.

HOUSE WREN: Perry Nugent observed an early wren at Charleston on 9 September.

SHORT-BILLED MARSH WREN: One was noted singing at North River marsh, near Beaufort, on 7 August by Brainard Palmer-Ball. Because one was heard singing at the identical site in May, there is the chance that a territorial bird was involved.

BLUE-GRAY GNATCATCHER: Over a month late was a gnatcatcher near Durham on 2 December, as seen by Jim McConnell.

LOGGERHEAD SHRIKE: A rare migrant was observed by Greg Hanisek on the North Carolina Outer Banks at Salvo on 8 October.

PHILADELPHIA VIREO: Ricky Davis and Jim Parnell saw one at Fort Fisher on 18 September, and they (and Bud Needham) noted two at Ocracoke Island on the next day. Inland sightings were of one near Chapel Hill on 12 September (Bill Wagner) and one in a Fayetteville yard on 30 September, 5 October, and 8 October (Philip Crutchfield).

PROTHONOTARY WARBLER: Evelyn Dabbs banded 89 birds between 29 July and 15 August near Mayesville, S.C.

WORM-EATING WARBLER: An early migrant was seen by Greg Massey on 4 August at Orton Plantation in Brunswick County, N.C.

GOLDEN-WINGED WARBLER: Six were noted by Harry LeGrand and others in the Clemson area from 13 to 27 September. Sightings of singles were made along the Neuse River in Johnston County, N.C., on 15 September (Tom Haggerty), at Huntington Beach State Park on 20 September (Cheryl Phillips, Perry Nugent), near Fayetteville on 22 September (Philip Crutchfield), and at Mayesville, S.C., on 28 September (banded— Evelyn Dabbs).

BLUE-WINGED WARBLER: Reports of birds in North Carolina spanned the period from 16 August to 19 September and were noted in Johnston County (Tom Haggerty), Fayetteville (Philip Crutchfield), Sunset Beach (Crutchfield), Carolina Beach (Greg Massey et al.), and Jordan Reservoir (Margaret Wagner). South Carolina records fell between 17 and 27 September at Clemson (Sidney Gauthreaux), Charleston (Perry Nugent), and Huntington Beach State Park (Nugent).

BREWSTER'S WARBLER: This hybrid was carefully observed by Perry Nugent at Charleston on 17 September.

TENNESSEE WARBLER: This species was seen in considerably greater numbers in eastern North Carolina than usual in fall, especially at Southern Pines and Fayetteville. Rare for the coast were one seen at Ocracoke Island on 19 September by Ricky Davis, Bud Needham, and Jim Parnell; one at Cape Lookout on 3 October by John Fussell; and three at Fort Fisher on 3 October by Greg Massey and party.

ORANGE-CROWNED WARBLER: Philip Crutchfield noted one or two in a yard in Fayetteville on 8 October, and Allen Bryan noted one near Edenton, N.C., on 27 November and a different individual there on 28 November.

NASHVILLE WARBLER: Rare for eastern North Carolina were individuals at Ocracoke Island on 19 September (Ricky Davis), near Burlington on 20 September (Allen Bryan), at Chapel Hill on 28 September (Bill and Margaret Wagner), at Fort Fisher on 3 October (Greg Massey), and at Southern Pines on 4 October (Jay Carter).

NORTHERN PARULA: A month late was one seen by Tom Haggerty near Holts Lake in Johnston County on 15 November.

CERULEAN WARBLER: This species is quite rare in fall migration; thus, noteworthy were immatures or females seen near Blowing Rock, N.C., on 1 August (Tom Haggerty) and at Charleston on 17 September (Perry Nugent), and an adult male at Clemson on 12 and 13 September (Harry LeGrand).

BLACKBURNIAN WARBLER: One was rare along the coast at Fort Fisher, as seen by Greg Massey on 3 October. Another noted by Albert and June Conway was very late on 22 November at Catawba, S.C.

YELLOW-THROATED WARBLER: Rare for the northern mountains of North Carolina was a presumed migrant near Boone on 5 September (Tom Haggerty).

CHESTNUT-SIDED WARBLER: Rare for the coast were singles noted at Ocracoke Island on 19 September by Ricky Davis and Jim Parnell, and at Cape Lookout on 25 September by Skip Prange.

PINE WARBLER: Tom Haggerty had many records in the Boone area in September and early October, including five in one tree on 5 September.

CONNECTICUT WARBLER: A good find was an adult male observed by Tom Haggerty on 24 September along the South Fork New River, Watauga County, N.C.

MOURNING WARBLER: This is the rarest of the regularly occurring warblers in the Carolinas. Quite unusual were three well-described birds this fall: an adult male at Blowing Rock on 6 September (Tom Haggerty), a probable adult male at the U.S. Vegetable Lab in Charleston on 9 September (Perry Nugent), and a female or immature at Ocracoke Island on 19 September (Ricky Davis).

WILSON'S WARBLER: Individuals seen in eastern North Carolina were near Fayetteville on 22 September (Philip Crutchfield), Wilmington on 25 September (Kitty Kosh, Greg Massey), Chapel Hill on 6 October (Bill and Margaret Wagner), and Pea Island on 12 October (Herb Wilson).

CANADA WARBLER: Quite rare for the coast were birds noted by Skip Prange at Harkers Island, N.C., on 23 August, and by Kitty Kosh at Wilmington on 20 and 21 September.

BREWER'S BLACKBIRD: A male was a rare migrant near Pendleton, S.C., as seen by Sidney Gauthreaux and others on 8 November. [From time to time I receive reports of this species without details. As the species is rather difficult to identify and is rare in the Carolinas, full details should accompany all reports. Helpful field marks not emphasized in the field guides are the moderately thick bill (intermediate in shape between the slender bill of the Rusty Blackbird and the thick bill of the cowbird) and the brilliant white eye of the male (as opposed to the dull yellow eye of the Rusty).— HEL]

WESTERN TANAGER: An excellent find was a male, still retaining some rosy color on the head, seen by Allen Bryan in a woodland near Edenton, N.C., on 29 November.

PAINTED BUNTING: Philip Crutchfield observed a female or immature male in a hedgerow near Wade in Cumberland County on 24 August.

PURPLE FINCH: Extremely early were a female or immature at Cape Lookout (Skip Prange) and an adult male at Fayetteville (Philip Crutchfield), both on 10 September.

HOUSE FINCH: Bill Duyck noted a female in his yard in Asheville on 24 and 25 October. This species is still uncommon in the mountains.

PINE SISKIN: Jim McConnell noted flocks of 500+ in Graham County, N.C., in late November, with 1000 seen on 27 November.

AMERICAN GOLDFINCH: One was noted near Lumberton, N.C., on 24 May by Douglas McNair. He also found 12, mostly singing males, on 10 June at Maxton, N.C.; he believes these birds were late migrants.

RED CROSSBILL: Two were observed by Allen Bryan at Mount Mitchell, N.C., on 22 August. There were no fall reports away from the mountains.

GRASSHOPPER SPARROW: A probable immature, with streaks on the breast, was seen by Ricky Davis on 20 August at the New Hanover County, N.C., airport, further suggesting that the species is nesting at this locality. One was seen at Derby, Richmond County, N.C., on 13 October by Douglas McNair. As breeding occurred this year at Derby, this individual was probably present during the summer.

HENSLOW'S SPARROW: Two wintering birds were observed by John Fussell and Wayne Irvin in western Carteret County, N.C., on 8 November.

LARK SPARROW: The only fall report was one noted by Perry Nugent and others at Huntington Beach State Park on 20 September.

LINCOLN'S SPARROW: Single migrants were seen by Tom Haggerty near Four Oaks on 8 October; by Marc Eisdorfer and Mark Crotteau at Eno River State Park, N.C., on 18 October; by Allen Bryan at Jordan Reservoir on 22 October; and by Harry LeGrand at Clemson on 7 November and near Pendleton on the following day. In the mountains of North Carolina, where this secretive species is by no means rare in fall, Haggerty reported good numbers in the Boone area, with a peak of seven on 25 September.

Red-cockaded Woodpecker Newsletter Available

Red-cockaded Woodpecker News is a new publication founded to promote the exchange of information among those who need to know the latest developments concerning the conservation of this endangered species. Persons interested in receiving this quarterly bulletin should write its editor, Anne Shapiro, Division of Wildlife, Florida Game and Fresh Water Fish Commission, 620 South Meridian Street, Tallahassee, Fla. 32301. The Winter 1982 issue features an article by Michael Lennartz of Clemson University and summarizes publications and reports on the Red-cockaded Woodpecker issued in 1979, 1980, and 1981.—EFP

BOOK REVIEW

BIRDLIFE AT CHINCOTEAGUE AND THE VIRGINIA BARRIER ISLANDS

Brooke Meanley. 1981. Cornell Maritime Press, Centerville, Md. 21617. 117 p. Softcover. $7.50.

This book provides an invaluable introduction for amateur naturalists intending to visit the Chincoteague area. The short chapters are an interesting combination of ones on specific birds (e.g. The Atlantic Brant), groups of related birds (e.g. Strikers & Flood Gulls), ecologically related species (e.g. Birds of Oceanic Littoral Zone), and activities of bird students (Banding Royal Terns, The Christmas Bird Count). *Chat* readers may be especially interested in Meanley's chapter entitled "Some Unusual Bird Records" because it gives some insight into rare species likely to show up along the Carolina coast. Indeed, many already have done so. Numerous charts, drawings, and black-and-white photographs add to the value of the book, which should prove enjoyable to anyone wishing to become familiar with the area and perhaps to those who already are.—DSL

BACKYARD BIRDING

(Continued from Page 40)

fluffy breast feathers were on the ground at the spot I had last seen the jay—so the hawk did make contact. I was sure, however, that when the hawk flew, it did not have a bird in its talons. That Blue Jay was so "shook up" that I did not see it again for almost 24 hours. For several days, the crippled jay was quite shy about coming here and away from cover.

An hour or so after the hawk attempted to get the Blue Jay, it returned and, like a shot out of a gun, dived toward a spot within a few feet of my chair where some White-throated Sparrows were feeding. We startled each other, and the hawk left without catching anything. This time I watched it fly up onto a branch of a large oak tree in the front yard. I went up front and looked at the hawk carefully with my glasses. When it turned its head and saw me, it flew off across the street into the woods. What surprised me, however, was that the hawk was not our resident Sharpie, but a fine adult Cooper's Hawk. I surmised that it was migrating north and was looking for a quick meal. Now I am fascinated with hawks and know that they have their niche in the scheme of things, but somehow, I don't want them taking my "pets," not even the crippled ones to which they are entitled by Mother Nature.—GAIL T. WHITEHURST, 1505 Brooks Avenue, Raleigh, N.C. 27607

Carolina Bird Club
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Carolina Bird Club, Inc., is a non-profit educational and scientific association founded in March 1937 and open to anyone interested in the study and conservation of wildlife, particularly birds. Dues, contributions, and bequests to the club are deductible from state and federal income and estate taxes. Checks should be made payable to Carolina Bird Club, Inc., and sent to CBC Headquarters, P.O. Box 27647, Raleigh, N.C. 27611.

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The Chat

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The Chat

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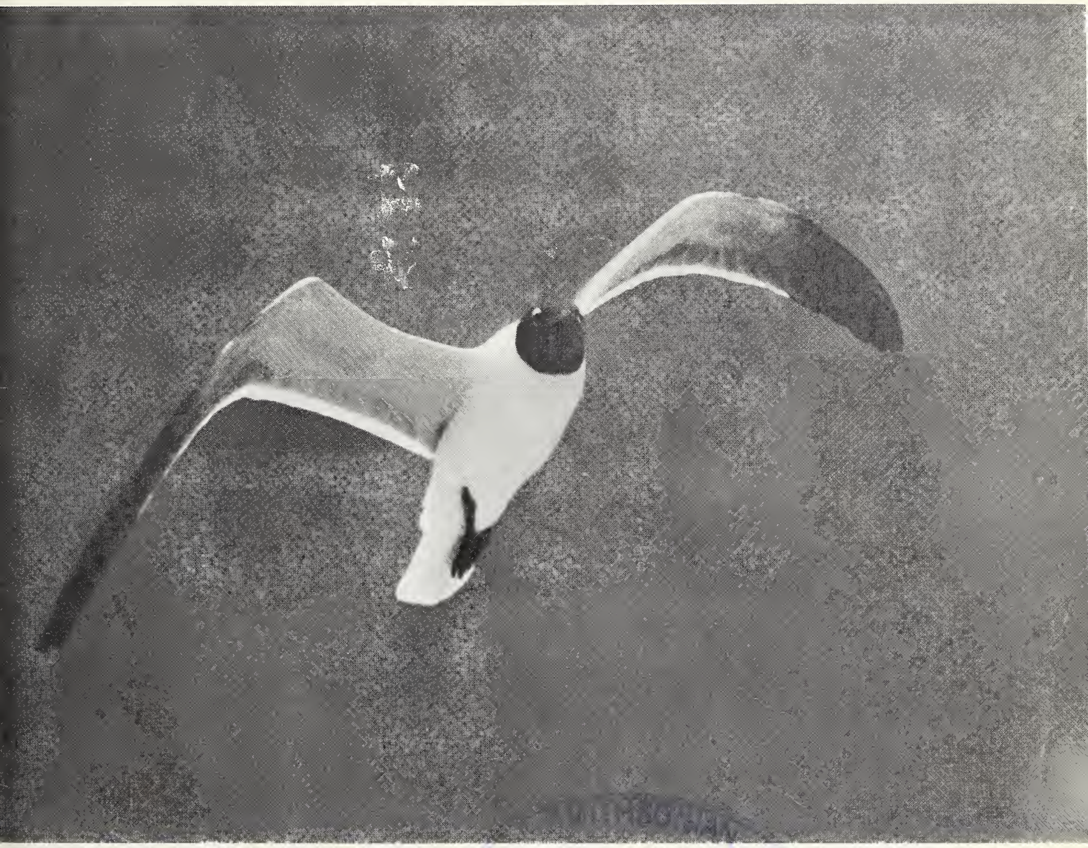

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OUR COVER—A Laughing Gull in breeding plumage was captured in flight by the lens of John Trott. Pfeiffer College at Misenheimer, N.C., is honoring this distinguished alumnus with a showing of his nature photography that will last through 15 October. John is Resident Naturalist at the Madeira School in McLean, Virginia.

REPORT ON SIX RECENT SIGHTINGS OF THE ICELAND GULL IN NORTH CAROLINA WITH COMMENTS ON PROBLEMS OF FIELD IDENTIFICATION

JOHN O. FUSSELL III, MICHAEL J. TOVE,
and HARRY E. LeGRAND JR.

Abstract.—Observations of six Iceland Gulls, seen in Carteret and Dare Counties in 1980 and 1981, are discussed. Evidence is presented to show that these gulls were not hybrids, or albinistic or leucistic individuals, or Glaucous or Thayer's Gulls. Separation of Iceland Gull and Thayer's Gull can be difficult and some individuals probably cannot be safely identified. Emphasis is placed on "building a case" for the identification of any "white-winged" gull.

Reports of "white-winged" gulls [in this paper, Glaucous Gull (*Larus hyperboreus*) and Iceland Gull (*L. glaucoides*)] in the Carolinas are increasing. Including those in this paper, there are 78 known records—51 of Glaucous Gull, 23 of Iceland Gull, and four of unidentified species. Almost three-fourths of these records were made during the last decade. This increase is probably due in part to an increase in gull populations and in part to an increase in the number of capable observers, especially in regard to coverage along the coast in winter. Many of the recent winter records were made after periods of abnormally cold weather.

With the increase in "white-winged" gull sightings, there have been some controversies in the Carolinas (see Am. Birds 31:321, Chat 42:10). This is not surprising, for this group of birds can pose identification problems in the field (and sometimes in the hand). A frequent problem is that in areas where Glaucous and Iceland Gulls are uncommon to rare, or among observers unfamiliar with these species, there has been a strong tendency to misidentify small Glaucous Gulls as Iceland Gulls. This tendency appears to be largely due to two common misconceptions that can be traced to the popular field guides: (1) the primaries of a Glaucous Gull at rest never extend beyond the tail, and (2) all "white-winged" gulls that are approximately the same "size" as Herring Gulls (*L. argentatus*) are Iceland Gulls, Glaucous Gulls always being obviously larger than Herring Gulls. In fact, the primaries of a Glaucous Gull *usually extend beyond the tail* (Kay 1947, Hume 1975, Grant 1981), and, no matter how size is defined, there is some overlap between the Glaucous Gull and the Herring Gull. Another identification problem that has recently come to light in several western states is that pale immature Thayer's Gulls (*L. thayeri*) have been called Iceland Gulls and other species (Am. Birds 32:1030, 33:296; Pulich 1980; Weber 1981). On the other hand, darker adults of the Kumlien's race of Iceland Gull have probably been misidentified as Thayer's Gulls (Am. Birds 26:577). Still more problems are the occurrence of albinism and leucism in gulls and the relatively frequent occurrence of hybridization in gulls.

Although there are specimens of Glaucous Gull for both North and South Carolina, there are no specimens of Iceland Gull for either state. (There is an Iceland specimen for Georgia.) In 1964, a detailed account of an Iceland Gull sighting in South Carolina was published in *Chat* (28:49-51) and in 1978 three more detailed South Carolina sightings were published (Chat 42:10-12). Although there were 12 records of Iceland Gulls in North Carolina prior to this paper, none had been truly well documented, i.e. to a degree desirable for a species that is part of such controversies or in a manner that rules out the recently recognized Thayer's Gull. In the winters of 1979-1980 and 1980-1981, we observed six Iceland Gulls in North Carolina, four in Carteret County and two in Dare County, and photographed four of these birds. Three of the Carteret birds were present for long periods and were studied under exceptional conditions and on numerous occasions. However, attempts to collect a specimen were unsuccessful. Thus the purpose of this paper is to document these Iceland Gulls in a manner that rules out other species, albinistic and leucistic birds, and hybrids.

ICELAND GULL OBSERVATIONS

Birds 1, 2, 3, and 6 were seen in Carteret County; Birds 4 and 5 were found in Dare County. Color slides have been deposited at the North Carolina State Museum of Natural History, Raleigh, N.C.

BIRD 1. A first-winter immature (Fig. 1 and 2) was found by Dana Carter and John Fussell at Fort Macon on 17 January 1980. From then until 12 March, it was seen nine times by a total of nine observers: Allen Bryan, Dana Carter, Larry Crawford, John Fussell, Kevin Hintsa, Dwight Lee, Bob Lewis, Mike Tove, and Ray Winstead. All sightings, except one at Atlantic Beach, were within a mile of Beaufort Inlet. On three occasions, this gull was seen feeding behind a hopper dredge that worked in the inlet much of the winter.

This bird, although it usually associated with Ring-billed Gulls (*L. delawarensis*), was seen several times next to Herring Gulls for size comparison. Best studies were made on: 18 January, when it was studied next to a Herring Gull through a 20X scope at 75 feet for about a minute; 1 February, when studied for several minutes at 150 feet through a Questar at 80X; and 12 March, when studied next to a Herring Gull, both birds in full profile at 25 feet, through 10X binoculars for a minute.

Field characters.—The general aspect was of a slender, long-winged, small-headed bird. Its bill-to-wing-tip length was similar to that of a Herring Gull, but it was obviously of a lesser bulk. The extension of the wing tips beyond the tail slightly exceeded the bird's bill (culmen) length. Its plumage was generally a pale buff to a whitish buff (lighter in March than in January). Most of the plumage was finely and densely barred with buff or light tan; this barring appeared to be most prominent on the wing coverts and upper tail coverts. The unbarred primaries graded from a pale buff to whitish adjacent to the coverts to white or whitish at the tips; thus the primaries, but particularly the tips of the primaries,

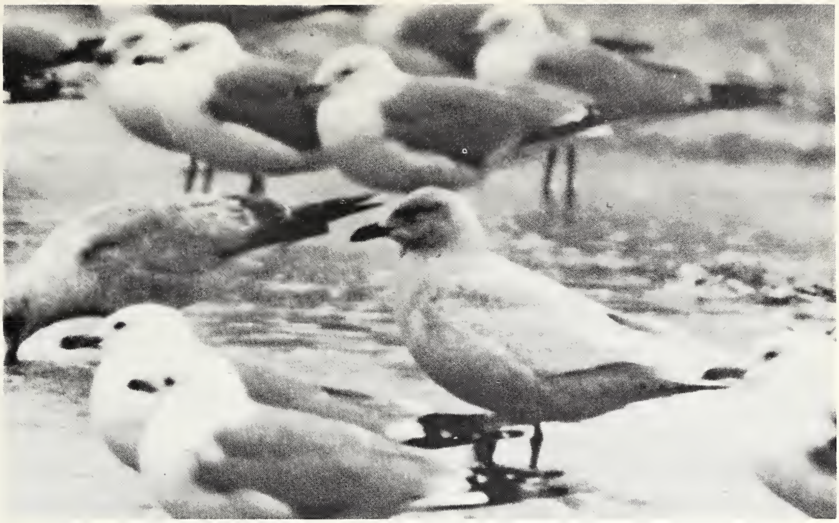

Fig. 1. Immature Iceland Gull (Bird 1) near Fort Macon, 12 March 1980. An immature Ring-billed Gull is to the left of the Iceland Gull; all other birds are adult Ring-billed Gulls. (Photo by John Fussell)

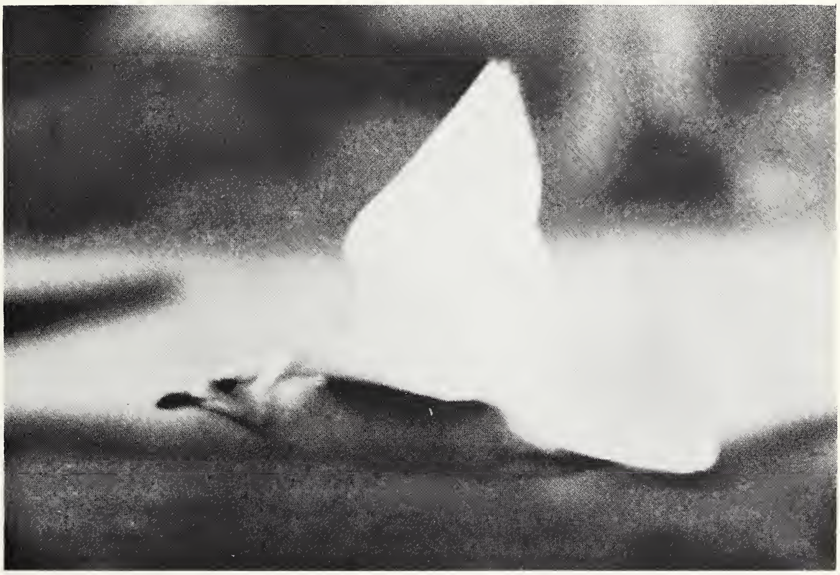

Fig. 2. Immature Iceland Gull (Bird 1) in flight, 12 March 1980. (Photo by John Fussell)

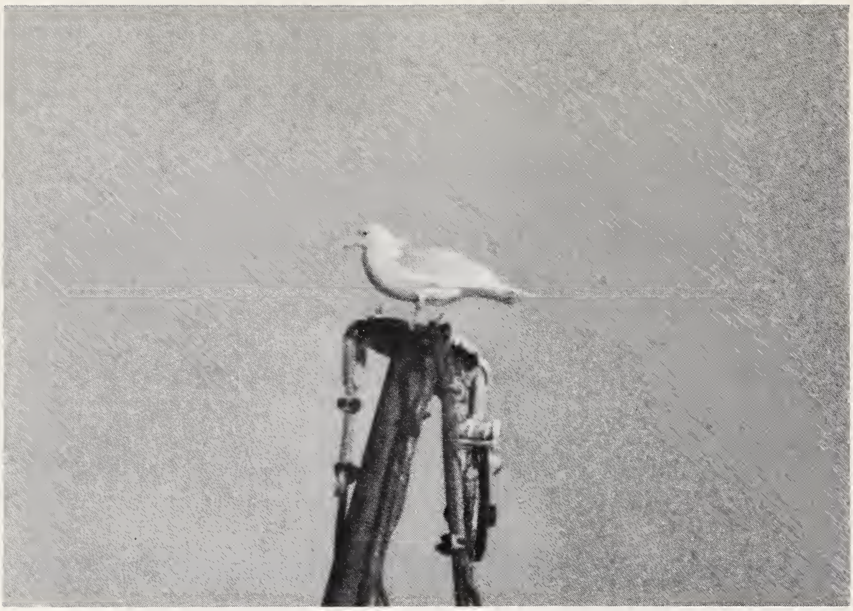

Fig. 3. Adult Iceland Gull (Bird 2) on Morehead City waterfront, 10 February 1980. This individual preferred to perch on ships' masts and other very high sites. (Photo by John Fussell)

were paler than the rest of the wing. The rectrices were mottled with buff and white; because of the high density of buff barring, there was a slight contrast between the rectrices and the upper tail coverts. Each of the rectrices appeared to be tipped with white. The iris was brown or brownish. The bill was black or blackish and was about one-third shorter than that of adjacent Herring Gulls. On at least two occasions, this bird was chased by a Herring Gull; it was never seen to dominate that species though.

BIRD 2. An adult (Fig. 3) was discovered on 18 January 1980 next to the drawbridge at Beaufort by Fussell, Bill Moffitt, and Ray Winstead. It was seen a total of five times (latest was on 11 February) by 12 observers: Mike Alford, John Fussell, Bob Hader, Fran and Wayne Irvin, Ken Knapp, Harry LeGrand, Bill Moffitt, JoAnne Powell, Mike Tove, McDuffy Wade, and Ray Winstead. Four of the five sightings were around fish houses and all sightings were in the immediate Morehead City-Beaufort area. Several thorough searches of the fish houses at other times did not turn up the bird; possibly at these times it was offshore around fishing boats.

This bird was also closely studied for size comparison with Herring Gulls. Best studies were made on: 18 January, when it was studied through a 20X scope at 200 feet for 2 minutes, as it stood next to several Herring Gulls, all in full profile; and 19 January, when seen for several seconds by Ken Knapp and Bob Hader at 20 feet through 10X binoculars as it hovered over the water.

Field characters.—When at rest, this individual was similar in general aspect to Bird 1, although the long, attenuated appearance was not quite as pronounced. The length by which the wing tips exceeded the tail was greater than the length of the bird's bill. As compared to adjacent Herring Gulls, this bird was of a lesser bulk, had an obviously shorter bill, and had a much lighter mantle color. There was almost no streaking on the head and neck. The primary tips were white, except that the outer primaries had some of the pattern of gray bars that is typical of the Kumlien's race of the species. However, this pattern was rather faint, and at a distance, the wing tips looked all white. The rectrices were white. Iris color, as observed by Knapp and Hader, was a clear, unspeckled pale yellowish; the color of the orbital ring (eye-ring) was not observed. Leg color was a duskier, more colorful pink than that of Herring Gulls. On several occasions we saw this bird dominated by Herring Gulls, both adults and immatures, but we never saw it dominate that species.

BIRD 3. A first-winter immature (Fig. 4) was seen by LeGrand and Tove for 5 minutes on 25 January 1980 as it flew around off the south end of Radio Island near Beaufort. It was not seen again.

Field characters.—This individual was seen flying near Ring-billed Gulls; it was somewhat larger than they but flew as buoyantly. It appeared to be uniformly buffy colored, but the primaries were obviously whiter. The rectrices were light, providing no contrast with the tail coverts. The bill was small and slender relative to the head and was mostly dark with a grayish-pink base.

BIRD 4. A first-winter immature was seen by Tove and Steve Graves for about 5 minutes as it followed the Ocracoke-Hatteras ferry on 9 January 1981. On this day over 1 million gulls were seen, including the Iceland Gull and two Glaucous Gulls.

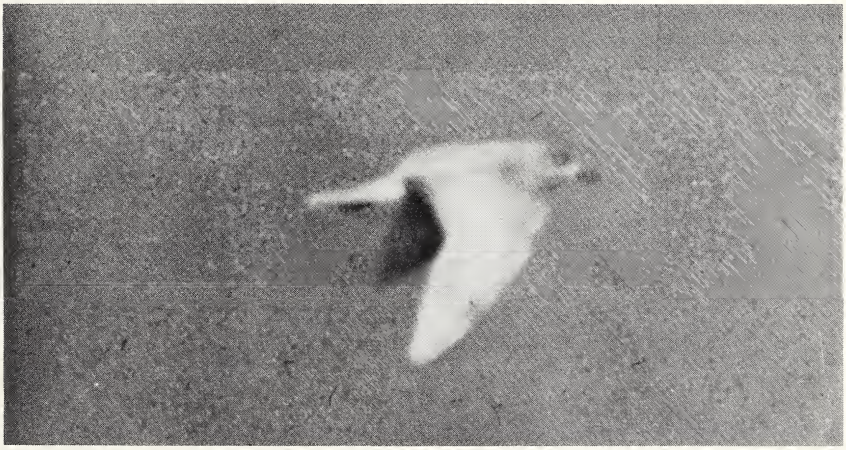

Fig. 4. Immature Iceland Gull (Bird 3) in flight at Radio Island, 25 January 1980. (Photo by Mike Tove)

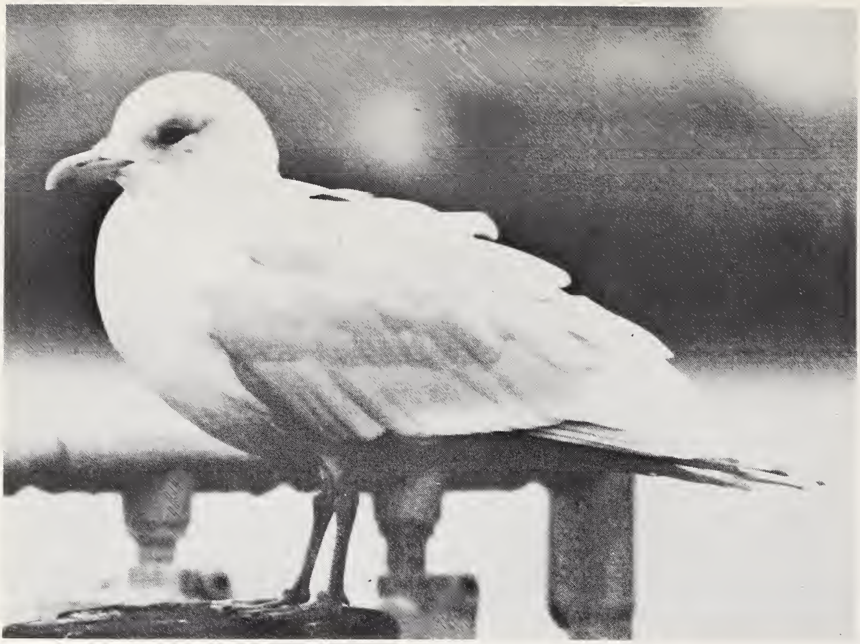

Fig. 5. Adult Iceland Gull (Bird 6) on Morehead City waterfront, 11 February 1981. Note "classic" Iceland Gull profile of small head and stubby bill. (Photo by John Fussell)

Field characters.—This bird was intermediate in size between Herring and Ring-billed Gulls. It was uniformly pale buffy-white with whiter primaries. The rectrices were white with faint tan barring and did not contrast with the tail coverts. The bill was small and mostly dark with a paler pinkish-gray base. In contrast, an immature Glaucous Gull, seen only minutes earlier, was massive, being easily as large as a Great Black-backed Gull (*L. marinus*). The bill of that bird was especially long and cleanly flesh-colored with a well-defined black tip.

BIRD 5. A first-winter immature was seen by Tove and Graves as it swam 100 feet from shore at Oregon Inlet on 10 January 1981.

Field characters.—While the bird was on the water, its folded wings extended well beyond the tail, giving the gull a very attenuated appearance. The plumage was white with pale buff barring. The bill was small relative to the head, and was dark with a horn-gray base. Eventually the bird flew and joined a small flock of Ring-billed Gulls. The Iceland Gull was slightly larger than the Ring-billeds, but flew as buoyantly.

We believe that this individual was a first-winter bird in spite of its very pale plumage. Identification of age groups is another aspect of "white-winged" gull study about which there seems to be some confusion caused by the popular field

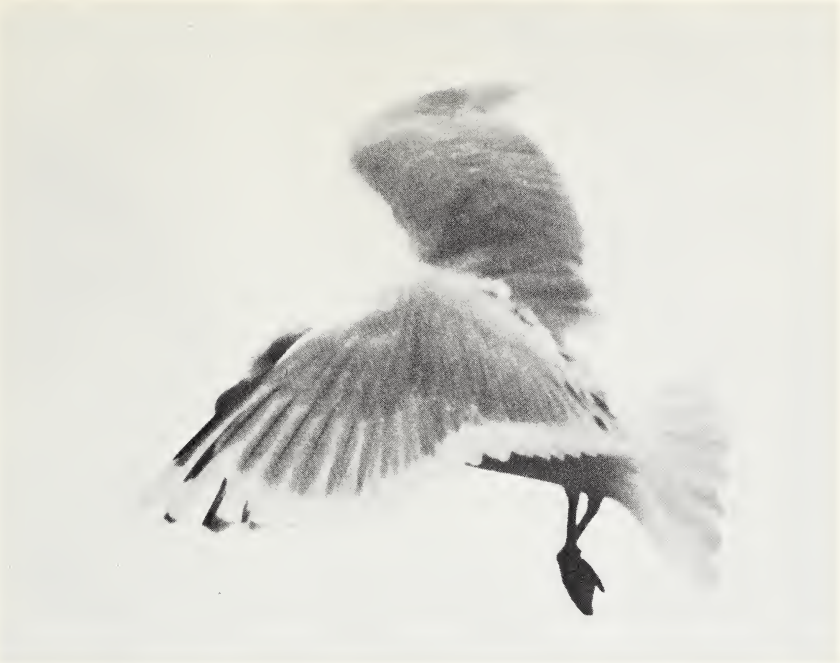

Fig. 6. Adult Iceland Gull (Bird 6) in flight, 11 February 1981. The slate-gray bars in the outer primaries are darker and more extensive than in many Iceland Gulls, but still within the range of that species as opposed to the Thayer's Gull. (Photo by John Fussell)

guides. Kay (1950) and Hume (1975) have pointed out that first-year birds may be paler than second-year birds; Kay (1950) suggested that bill and eye coloration and other characters are probably a better indication of age than is general plumage coloration. We have noticed that most detailed accounts of "second-winter" Glaucous and Iceland Gulls in the Carolinas that mention soft parts have described the soft parts of a typical first-winter individual.

BIRD 6. Another adult (Fig. 5, 6, and 7) was found on the Morehead City waterfront on 1 February 1981 by Carter, Fussell, Graves, and Tove. It was later seen at the same site three more times, the last being on 21 February, when it was seen by Wayne Irvin. It was also seen by Larry Crawford and Thomas Newport.

This individual was studied under excellent conditions. The best study was made during 2 hours on 11 February, when this gull, and a group of Herring and Ring-billed Gulls, responded aggressively to bread thrown out to them. The Iceland Gull was studied as closely as 18 feet (minimum focus of 10X binoculars and camera) for up to a minute at a time as it perched on pilings with many Herring Gulls nearby for comparison. It was also studied and photographed at a similar distance as it fluttered over the water, vying with the other gulls for bread

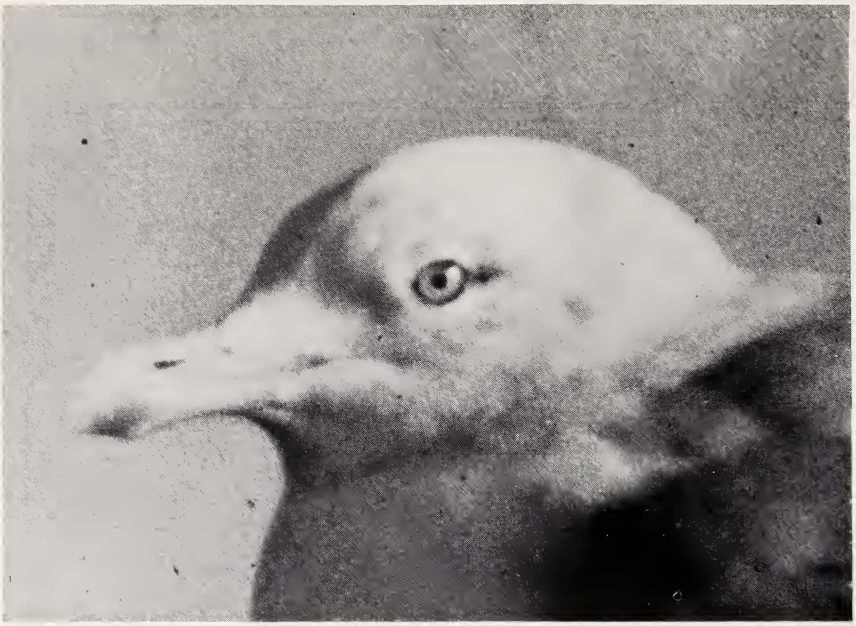

Fig. 7. Close-up of head of adult Iceland Gull (Bird 6), 13 February 1981. Only at very close range were the light irides apparent. At a little distance, due to shading around the eye, the irides looked dark, as in Figure 5. (Photo by John Fussell)

that was thrown out. At this time, the pattern of the primaries was seen exceptionally well.

Field characters.—When this bird perched, it would frequently "hang" its wings, creating a distinctive profile. The extension of the wing tips beyond the tail was greater than the bill length. Its mantle color was much paler than that of adjacent Herring Gulls; the head and neck were lightly streaked with brownish, but the breast was virtually white. The primary tips were largely white; however, the pattern of gray bars that we saw on the 1980 adult was present and was very noticeable (Fig. 6). The rectrices were white. The irides, as seen under overcast skies through 10X binoculars at 18 feet, were clear with no flecks of dark pigment and were a pale gray-green; however, in bright sunlight, they appeared yellowish (Fig. 7). The orbital ring was a dark brownish-gray. The bill was much shorter than those of adjacent Herring Gulls and appeared very stubby (Fig. 5); the yellow of the bill was duller than the yellow of the Herring Gull's bill and had a tinge of greenish. The legs and feet were a dusky pink, much more colorful than those of the adjacent Herring Gulls. This bird was chased from its perch well over 50 times by both adult and immature Herring Gulls, but it was never seen to displace an individual of that species.

DISCUSSION

In November 1977, the CBC Records Committee decided to require a voucher specimen of Iceland Gull before admitting the species to the official North Carolina state list (Chat 42:10). Apparently that decision was made largely because of previous misidentifications of small Glaucous Gulls as Iceland Gulls in the state, and because many of the differences between immature Glaucous Gulls and immature Iceland Gulls are ones of a relative nature. Probably a more valid concern though, at least in regard to some individuals, is the "overlap zone" of appearance between the Thayer's Gull and the Iceland Gull (Kumlien's race).

We are confident that none of our six gulls were Glaucous Gulls. All these birds were of a bulk obviously less than that of *all* Herring Gulls seen adjacent to them. Also, their bills were relatively short; all had obviously shorter bills (up to one-third shorter) than those of *all* Herring Gulls with which they were compared. Such bill lengths are inconsistent with these birds' being Glaucous Gulls (see measurements in Smith 1966). The three birds that we saw while they were perched (Birds 1, 2, and 6) all had wing tips projecting beyond the tail to a length exceeding their respective bill (culmen) lengths. Grant (1981) states that, although Glaucous Gulls regularly have wing tips projecting beyond the tail, this length of projection never exceeds the bird's bill length, as is often the case with the Iceland Gull. The bill color of the immature gulls (Birds 1, 3, 4, and 5) was consistent with each of them being a first-winter Iceland Gull; it was not consistent with their being Glaucous Gulls of any age (see Hume 1975, Grant 1981). Both the adults (Birds 2 and 6) had the pattern of gray markings on the otherwise white distal portion of the outer primaries that is typical of the Kumlien's race of Iceland Gull. This primary pattern does not occur in the Glaucous Gull.

A more important consideration is the separation of our birds from Thayer's Gulls. Before we attempt this, it would be best to summarize some basic information about Thayer's and Iceland Gulls. The brief descriptions that follow refer to adults only.

Thayer's Gull.—This is a generally dark-eyed gull with a variable amount of gray to black in the wing tips and a mantle color that is generally similar to or slightly darker than that of the Herring Gull. The orbital ring is reddish or purplish (at least in the breeding season). It is mainly a cliff-nesting species that breeds primarily from Baffin Island and northern Hudson Bay north and northwest to the Arctic Ocean (at least from northwest Greenland to Banks Island). Apparently fall migration is mostly toward the southwest. The species winters primarily along the Pacific coast of North America. However, there are numerous records farther east, and the species is regular on the western Great Lakes. Along the Atlantic coast, Thayer's Gull is apparently rare, and virtually all reliable records have been of immature birds.

Iceland Gull.—This is separated into two races, the Kumlien's race (*L. g. kumlieni*), often called "Kumlien's Gull" (as a matter of convenience), which breeds on southern Baffin Island and the northwest tip of the Ungava Peninsula, and the nominate race (*L. g. glaucoides*), which breeds primarily along the coasts of Greenland. Both races of Iceland Gull are also cliff-nesters. Birds of the nominate race have pale irides, wing tips that are all white (sometimes with a trace of gray pattern), and a very pale mantle color. Individuals of the Kumlien's race are quite variable in appearance. They range from individuals that are morphologically identical to the nominate race to "dark" individuals that have considerable speckling of dark pigment in the irides, a rather prominent pattern of slate-gray in the wing tips, and (perhaps) a mantle color that averages slightly darker than in the nominate race. The orbital ring of both races is reddish or purplish in the breeding season.

The A.O.U. *Checklist* (1957) states that both races of Iceland Gull winter along the Atlantic coast of North America (primarily southeast Canada and the northeastern United States). Macpherson (1961) suggested that it was "fairly well established" that the "Kumlien's Gull" wintered in this area and noted that a banded individual collected in Maryland was from a colony on southwest Baffin Island. However, he felt that the exact winter status of the nominate race was open to question because many individuals of the Kumlien's race are identical to the nominate race. Recently, Lehman (1980), probably reflecting the consensus of present-day gull students, suggested that the Kumlien's race winters predominantly along the Atlantic coast of North America, but that the nominate race winters predominantly in Europe. A review of British birding literature (as Hume 1975, Grant 1981) suggests that "Kumlien's Gulls" (well-marked ones, at least) are absent or nearly so in Great Britain, where birds are studied intensively.

In many respects the darker "Kumlien's Gulls" are intermediate between the Thayer's Gull and the nominate race of Iceland Gull. In fact, the "Kumlien's Gull" was formerly considered to represent a hybrid between the Thayer's Gull (then considered to be a race of Herring Gull) and the "Iceland Gull" (name then restricted to the birds with all-white wing tips) (Dwight 1925), until it was discovered that the two supposedly parental populations did not overlap. From 1959 to 1961, Smith (1966) studied breeding colonies of gulls in the Baffin Island region of Canada, including colonies with Glaucous Gulls, Thayer's Gulls, "Kumlien's Gulls," and Herring Gulls all present. Among these populations, he found complete reproductive isolation. Because of Smith's findings, the A.O.U. (1973) designated the Thayer's Gull as no longer a race of the Herring Gull, but as a separate species. Although Smith found reproductive isolation between the Thayer's Gull and "Kumlien's Gull," recent work in the Baffin Island region has found interbreeding between the two populations, and, in the future, the Thayer's Gull may be considered a race of Iceland Gull (Sutton and Parmelee 1978, Weber 1981).

Whether or not the Thayer's Gull and the Iceland Gull are regarded as conspecific in the future, it is true that the two populations are, on the average, very different in appearance; but some of the lightest Thayer's Gulls and darkest "Kumlien's Gulls" are very similar. There are probably some individuals that, even in the hand, could not safely be assigned to either species. Clearly, in the identification of one of these species, the observer must *build a case for the identification*, observing as many characters as possible that are consistent with one species and that are inconsistent (or relatively so) with the other species. This is the approach we have taken in identifying the six birds we saw as Iceland Gulls.

Identification of the four immature gulls, Iceland Gull versus Thayer's Gull. There are two major field characters by which one can separate most first-winter Iceland and Thayer's Gulls: color of the primaries, particularly color relative to the rest of the wing; and color of the rectrices, including the degree of contrast between the general color of the rectrices and the general color of the tail coverts (Gosselin and David 1975, Lehman 1980). The upper surface of the primaries of a first-winter Iceland Gull varies from whitish to tannish and is the same color as the rest of the wing or lighter. In Thayer's Gull, the upper surface of the primaries varies from light brown to deep brown and is the same color as the rest of the wing or darker. The upper primary surface of the four immatures we saw varied from white to pale buff, but, in all cases, we observed that the color was lighter than the rest of the wing, consistent with the birds' being Iceland Gulls and inconsistent with their being Thayer's Gulls. We obtained one good color slide of the color of the primaries of Bird 1. We are confident that all our birds were first-winter individuals; however, we will mention that the pattern of contrast between the primaries and the rest of the wing cited above is repeated in second-winter individuals (see Hume 1975, Sutton and Parmelee 1978, Lehman 1980).

In first-winter Thayer's Gulls, virtually all the surface of the rectrices not hidden by the tail coverts is a solid brown or brown-gray. This general color contrasts strongly with the mottled tail coverts, creating a noticeable tail band. In contrast, rectrices of first-winter Iceland Gulls are whitish with variable amounts of buff barring. In some individuals, the density of barring is great enough to create a slight tail-band appearance as in the Thayer's Gull, but the degree of contrast is much less. The color of the rectrices of the four immature gulls we studied was whitish with light to moderate amounts of buff barring, consistent with their being first-winter Iceland Gulls and inconsistent with their being Thayer's Gulls of any age. We obtained one color slide of Bird 1 that shows the white-and-buff mottled rectrices of that bird very well.

Smith (1966) collected biometric data on 646 Thayer's Gulls and 889 Iceland Gulls (Kumlien's race) in the Baffin Island region of Canada. He measured flattened wing length, tarsus, culmen length, distance between the anterior edge of naris and bill tip, and depth of the bill at the posterior edge of naris. Within each sex, Thayer's Gull averaged greater than "Kumlien's Gull" for all five measurements; the amount of overlap varied from considerable for wing length to almost none for culmen length. (We have seen no data on Thayer's Gulls or Iceland Gulls from elsewhere that increase the amount of overlap recorded by Smith.) Male gulls average larger than females; therefore, combining Smith's data for both male and female gulls increases the range of overlap between Thayer's Gull and Iceland Gull. However, the amount of overlap of culmen length between the two species is still very slight. Of course, the applicability of Smith's data to the identification of our birds in the field is limited. Nonetheless, bill length relative to that of the Herring Gull was a character of our birds that we studied very carefully. Based on Smith's data (which include measurements on 228 Herring Gulls) and the comparison of the bills of our birds with those of Herring Gulls, we think it would be very conservative to say that the bill lengths of our birds fell either within the range of overlap between Thayer's Gull and Iceland

Gull (consistent with both species) or within the range of Iceland Gull but less than Thayer's Gull (consistent with Iceland Gull only). They definitely did not fall within the range of Thayer's Gull bill lengths that exceed all those of Iceland Gulls. Such bill lengths would be as long as those of many Herring Gulls. The bill length of Bird 1 (about one-third less than in numerous adjacent Herring Gulls) is particularly inconsistent with that bird's being a Thayer's Gull.

Identification of the two adult gulls, Iceland Gull versus Thayer's Gull.—Most of the field characters we studied—bill color, leg color, amount of streaking on the head and neck, orbital-ring color, etc.—appear to be of no value in differentiating between Thayer's Gulls and Iceland Gulls. However, we studied (and photographed) three characters that, on the average, are quite different in the two species: (1) iris color, including degree of speckling of dark pigment, (2) pattern in the distal portion of the outer primaries, and (3) mantle color.

The Iceland Gulls that overlap in appearance with Thayer's Gulls are "Kumlien's Gulls." Therefore, below we will refer almost exclusively to that race as a matter of convenience. This does not necessarily mean we are identifying these birds to race, however.

On the average, irides of "Kumlien's Gulls" are lighter than those of Thayer's Gulls. However, there is considerable overlap. The best reference on iris color variation is Smith (1966). Smith recorded (in the hand or at extremely close range) the iris color of 1170 Thayer's Gulls and 1131 "Kumlien's Gulls" in the Baffin Island–northwest Hudson Bay region. Of special interest, he compared the iris color of the two populations where they were sympatric and where they were not. Where they were sympatric, the irides of most "Kumlien's Gulls" were clear or mostly light, but, on southwest Baffin Island, where there were no Thayer's Gulls, the irides of many "Kumlien's Gulls" were moderately to all dark. The irides of Thayer's Gulls were much less variable. Both where they were sympatric with "Kumlien's Gulls" and where they were not, their irides were mostly partly to all dark. Of the 1170 Thayer's Gulls, Smith found *none* that had all-clear irides. Thus, the iris color of the two adults we observed favors their being Iceland Gulls rather than Thayer's Gulls. We obtained several color slides of the irides of the 1981 adult.

In general, the amount of melanin in the wing tips of Thayer's Gulls and "Kumlien's Gulls" appears to be related to the amount of melanin in the irides. In both species, dark-eyed individuals generally have darker wing tips (Smith 1966), but there are frequent exceptions to this rule. Smith found that, where the two populations were sympatric, "Kumlien's Gulls" generally had whitish wing tips and Thayer's Gulls had blackish wing tips. However, in the whole Baffin Island region, "Kumlien's Gulls" had wing tips typically varying from whitish to having moderate amounts of dark gray, and Thayer's Gulls had wing tips varying from having moderate amounts of dark gray to extensive amounts of blackish. Smith apparently does not include the extreme variation in wing-tip pattern he observed, but he does include (p. 64) a detailed drawing of the typical variation he observed. Both adults we studied fell within the range of "Kumlien's Gulls" as pictured in Smith, Bird 6 (Fig. 6) toward the darker end of the range and Bird 2 toward the lighter end of the range. Thus the pattern of the primaries favors these birds' being Iceland Gulls. This is especially true of Bird 2.

On the average, the mantle color of an adult Thayer's Gull is similar to or slightly darker than that of the Herring Gull and that of the "Kumlien's Gull" is lighter than that of the Herring Gull (Smith 1966, Gosselin and David 1975, Lehman 1980). However, this character is difficult to evaluate and thus there is no good information on the limits of variation of mantle color in "Kumlien's Gulls" and Thayer's Gulls. In the field, the Herring Gull can be a good "yardstick" for comparison. Fortunately, during our observations of the adult gulls in 1980 and 1981, there were many Herring Gulls present. The mantle color of our birds was obviously lighter than that of all Herring Gulls with which they were compared. We obtained several color slides of Bird 6 next to Herring Gulls (and Ring-billed Gulls) for comparison; its relatively pale mantle is obvious in all slides. Based on this character, our birds are more likely to have been Iceland Gulls than Thayer's Gulls.

Our comments regarding size of the immature birds, especially bill length, are also applicable to the adults. These birds had obviously shorter bills than all Herring Gulls seen next to them. A conservative statement is that their bill lengths might be consistent with both Thayer's Gull and Iceland Gull, but certainly not with large Thayer's Gulls. However, we believe that the bill length of Bird 6 (Fig. 5) favors its being an Iceland Gull.

As stated above, we are not attempting to prove that these gulls are members of the "Kumlien's race," only that they are Iceland Gulls. One problem in positively identifying the race of the adults is the lack of extensive information (in an English publication, at least) on the extent of variation of the nominate race. However, based on fragments of information on the nominate race in several of the papers cited earlier, the wing-tip pattern of our birds (especially Bird 6) appears to lie well outside the normal range of the nominate race, and we assume that the adults were indeed "Kumlien's Gulls." Based solely on appearance (as opposed to geographic probability), no judgment on the probable race of the immature gulls is possible (see Gosselin and David 1975), although we suspect that the all-blackish bill of Bird 1 favors its being a "Kumlien's Gull" also.

An Iceland Gull specimen for North Carolina is desirable. Meanwhile, we believe that our black-and-white prints and color slides of both immature and adult birds address the basic points regarding separation of Thayer's Gull and Iceland Gull virtually as well as a specimen would. Color slides of Birds 1 and 6, which address all the major points of separation of Iceland and Thayer's Gulls, have been deposited in the color slide collection of the North Carolina State Museum of Natural History and critically examined by authorities on bird identification. Finally, there is no reason to suspect that any of our birds were leucistic or albinistic individuals of other gull species, or that they were hybrids. All our birds fell well within the normal size range of the Iceland Gull; also, all had bill lengths well within the normal size range of the species. All four immatures had the plumage and soft-parts coloration that has been described for typical first-winter Iceland Gulls. None of these birds were pure white or had any pure white regions in the plumage. All four had primaries lighter than the rest of the wing and mantle. None of our birds exhibited excessive wear as is typical of albinistic or leucistic individuals (Hume 1975). Certain hybrid combinations might result in a wing-tip pattern similar to the "Kumlien's wing-tip pattern." However, as stated above, our two adults fell well within the normal range of Iceland Gull body size and bill length. Also, our birds had all soft parts colored as in typical Iceland Gulls.

POSTSCRIPT

We hope that our photographs will give Carolina bird students a "feel" for the Iceland Gull and help reduce the tendency of observers to identify small Glaucous Gulls as Iceland Gulls. We also hope that our discussion of the six Iceland Gulls will lead to more caution in the reporting of "white-winged" gulls in the Carolinas. Because of considerable individual variation, albinism, leucism, and hybridization in gulls, the safest identification of a "white-winged" gull is usually of a typical individual. There are some aberrant gulls that cannot be safely identified. However, we urge observers of unidentifiable gulls to report their sightings—complete with thorough documentation—to *Chat* and *American Birds* so that we may all become more knowledgeable about the types of field identification problems associated with gulls.

More caution is urged in the identification of the age of immature "white-winged" gulls. Many first-winter "white-winged" gulls are very whitish, particularly in late winter, and we suspect that most reports of second-winter birds in the Carolinas are actually first-winter individuals. See Grant (1981) for reliable methods of aging immature Glaucous and Iceland Gulls.

LITERATURE CITED

American Ornithologists' Union. 1957. Checklist of North American Birds. Fifth edition. Baltimore.

American Ornithologists' Union. 1973. Thirty-second supplement to the A.O.U. Checklist of North American Birds. Auk 90:411-419.

Dwight, J. 1925. The gulls (Laridae) of the world: their plumages, moults, variations, relationships, and distribution. Amer. Mus. Nat. Hist. Bull. 52:63-402.

Gosselin, M., and N. David. 1975. Field identification of Thayer's Gull (*Larus thayeri*) in eastern North America. Am. Birds 29:1059-1066.

Grant, P.J. 1981. Field identification of west Palearctic gulls: Part 5. Glaucous, Iceland, Sooty, and White-eyed Gulls. Brit. Birds 74:363-394.

Hume, R.A. 1975. Identification and ageing of Glaucous and Iceland gulls. Brit. Birds 68:24-37.

Kay, G.T. 1947. The Glaucous Gull in winter. Brit. Birds 40:368-373, plates 40-53.

Kay, G.T. 1950. The Iceland Gull in winter. Brit. Birds 43:399-402, plates 74-81.

Lehman, P. 1980. The identification of Thayer's Gull in the field. Birding 12:198-210.

Macpherson, A. 1961. Observations on Canadian Arctic *Larus*. Arctic Inst. of North America Tech. Paper No. 7.

Pulich, W.M. 1980. A Thayer's Gull specimen from Texas: a problem in identification. Southwestern Nat. 25:257-282.

Smith, N.G. 1966. Evolution of some Arctic gulls (*Larus*): an experimental study of isolating mechanisms. Ornith. Monog. No. 4. Amer. Ornith. Union.

Sutton, G.M., and D.F. Parmelee. 1978. On maturation of Thayer's Gull. Wilson Bull. 90:479-491.

Weber, J.W. 1981. The *Larus* gulls of the Pacific Northwest's interior, with taxonomic comments on several forms (Part I). Continental Birdlife 2:1-10.

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Corrections

Two plants were incorrectly identified in the report on the "Third Annual Breeding Bird Forray: Hoke County, N.C." by Clark and Potter (Chat 46:29-37). On page 30, Fetterbush should be *Leucothoe racemosa*, and Slender Clubmoss should be *Lycopodium appressum.* The authors thank Jay Carter for bringing these errors to their attention.

Additional Cowbird Host for Carolinas

The Black-throated Green Warbler should be added to the list of host species for the Brown-headed Cowbird in the Carolinas (Potter and Whitehurst, Chat 45:57-68). Meanley (Raven 48:19) reports that a female was "observed building a nest in an American holly in the North Carolina section of the [Dismal] Swamp on 17 April, 1970; on 29 April, it contained two eggs of the warbler and one of a Brown-headed Cowbird."

New A.O.U. Check-list in Press

ELOISE F. POTTER

The 6th edition of the A.O.U. *Check-list of North American Birds* is now in press, but it will not appear until 1983. A supplement to the July 1982 *Auk* provides an updated list of birds recorded with appropriate documentation through December 1981 from Canada and the United States, including Hawaii. This 34th Supplement to the A.O.U. *Check-list* uses the sequence, scientific names, and English names of the 6th edition.

There are many changes in the sequence of species within genera and of genera within families. Several of the major changes involve dividing subfamilies into tribes. The most extensive revisions are in the passerines, where wood warblers, tanagers, cardinals, sparrows, and blackbirds and orioles are placed in different subfamilies of the family *Emberizidae*. The fringillids (including finches, crossbills, and the Evening Grosbeak) follow the orioles. The last family with a representative among the Carolina birds is the *Passeridae*—the House Sparrow.

Copies of the 34th Supplement are available for $3 each (postpaid) from G.E. Woolfenden, University of South Florida, Tampa, Florida 33620.

Listed below are the common and scientific names that differ from those used in *Birds of the Carolinas* (Potter, Parnell, and Teulings, 1980) and recent issues of *The Chat*. Scientific names that precede common names have been changed. Former common names are not given when only "America" or "Northern" has been added to the familiar form. Beginning with the next issue, *Chat* will adopt the nomenclature of the 34th Supplement. Contributors are requested to use the new names and species order if at all possible.

Herald Petrel (formerly South Trinidad Petrel).
Calonectris diomedea. Cory's Shearwater.
Band-rumped Storm-Petrel (formerly Harcourt's Storm-Petrel).
Sula bassanus. Northern Gannet.
American White Pelican.
Egretta caerulea. Little Blue Heron.
Egretta tricolor. Tricolored Heron (formerly Louisiana Heron).
Egretta rufescens. Reddish Egret.
Green-backed Heron (formerly Green Heron).
Nycticorax violaceus. Yellow-crowned Night-Heron.
Greater Flamingo (formerly American Flamingo).
Tundra Swan (formerly Whistling Swan). [This is my own least appreciated change in the entire list.—EFP]
Greater White-fronted Goose (*Anser albifrons*).
American Black Duck.
Northern Pintail.
Garganey (formerly Garganey Teal).
Eurasian Wigeon (formerly European Wigeon).
American Swallow-tailed Kite.

Elanus caeruleus. Black-shouldered Kite (formerly White-tailed Kite).
Nothern Harrier (formerly Marsh Hawk).
Northern Goshawk.
Polyborus plancus. Crested Caracara (formerly Caracara, Audubon's Caracara).
Wild Turkey (formerly Turkey).
Northern Bobwhite.
Common Moorhen (formerly Common Gallinule).
Northern Lapwing.
Lesser Golden Plover (formerly American Golden Plover).
Himantopus mexicanus. Black-necked Stilt.
Phaloropus fulicaria. Red Phalarope.
Common Black-headed Gull (formerly Black-headed Gull).
Sterna antillarum. Least Tern.
Common Ground-Dove (formerly Ground Dove).
Common Barn-Owl (formerly Barn Owl).
Eastern Screech-Owl (formerly Screech Owl).
Northern Saw-whet Owl.
Ceryle alcyon. Belted Kingfisher.
Northern Flicker (formerly Common Flicker, Yellow-shafted Flicker).
Contopus borealis. Olive-sided Flycatcher.
Eastern Wood-Pewee (note hyphen).
Tyrannus forficatus. Scissor-tailed Flycatcher.
Tyrannus savana. Fork-tailed Flycatcher.
Tachycineta bicolor. Tree Swallow.
Stelgidopteryx serripennis. Northern Rough-winged Swallow.
American Crow (formerly Common Crow).
Sedge Wren (formerly Short-billed Marsh Wren).
Marsh Wren (formerly Long-billed Marsh Wren).
Northern Wheatear.
Northern Mockingbird.
European Starling (formerly Starling).
Northern Cardinal.
American Tree Sparrow (*Spizella arborea*).
Ammodramus leconteii. Le Conte's Sparrow.
Ammodramus caudacutus. Sharp-tailed Sparrow.
Ammodramus maritimus. Seaside Sparrow.
Coccothraustes vespertinus. Evening Grosbeak.

CBC Roundtable

. . . with Louis C. Fink

More About Rough-winged Swallows and Dot Maps

Many CBC members have expressed appreciation for the range map that accompanied the article by Steve Platania and Mary Kay Clark on the Rough-winged Swallow (Chat 45:100-102). Gail Whitehurst reports an adult carrying food to a nest in a drainpipe in Pender County 12 and 13 June 1979. Daniel M. Kaplan adds a dot for Orange County with this account dated 15 June 1982: "I first noticed a pair of Rough-winged Swallows flying around the new wing of Wilson Library on the UNC campus on 8 June. I subsequently located the nest, containing at least two young, in the mouth of a pipe about 6 inches in diameter which protrudes slightly from the wall at the basement level of the building. I have observed the adults feeding the young in the nest nearly every day since then."

Breeding birds are fairly well documented for the immediate coast, for counties with major cities in the piedmont, and for the high-elevation portions of the mountains. Elsewhere in North Carolina, particularly in the coastal plain, it is almost impossible to find any published breeding records. *It is not necessary to collect a nest or eggs to establish a local breeding record.* All we need is the name of the species, date, place, evidence of breeding, and name of the observer though further details are very useful. Evidence might be adults building a nest, carrying food toward a nest, or feeding young birds out of the nest. The species does not have to be rare to be of interest.

An atlas of the breeding birds of North Carolina is in preparation and should be published within the next 2 to 3 years by the N.C. Biological Survey. If you live in any of the counties that do not have dots for the Rough-winged Swallow, chances are very good that a map of the Carolina Wren, Blue Jay, or Cardinal would not have a dot either. Records intended for the atlas may be sent to Eloise Potter or David Lee. Accurate information on the breeding distribution of birds is very important for various ecological studies and useful to the average bird watcher as well. Your help is needed, and it will be appreciated. ELOISE POTTER, Route 3, Box 114AA, Zebulon, N.C. 27597.

Remarks on the Identification of Brewer's Blackbirds

Over the past few years I have received a number of reports of Brewer's Blackbirds, some with good details and others with none whatsoever. I have published most of these reports, but some of my fellow birders have expressed concern over published sightings from residential areas, especially from semi-wooded habitats. I now believe that a handful of the recent published records, including a report of 1500 on the Charlotte, N.C., Christmas Bird Count in 1971, may have been of birds incorrectly identified. The following comments are helpful hints for identifying this species in the Carolinas.

Brewer's Blackbirds are birds of open country, especially of cattle feedlots. They may occur also in plowed fields, large open lawns, and pastures, but they are most frequently seen near cattle where the grass is very closely cropped. Although they roost with other blackbirds in woods and thickets, their foraging is generally limited to pastures and fields.

The species is essentially a rare migrant in the Carolinas, though it may winter in very small numbers from the Columbia, S.C., area west to the Georgia line. It is a rare though regular migrant (mainly in November, March, and April) in northwestern South Carolina and southwestern North Carolina (Asheville west). The species is very rare east of Asheville, Columbia, and Savannah, Ga.

Brewer's Blackbirds are approximately the same size and shape as Rusty Blackbirds, which also frequently occur in pastures and open lawns (as well as in swamps and wet thickets). Rusties also are not unusual on semi-wooded lawns. Male Brewer's, even in winter, still retain some glossy coloration, but in spring the birds are much more iridescent, with purple heads and aqua, blue-green bodies. Two field marks not stressed in guides, but excellent marks nonetheless, are the moderately short bill and the brilliant yellow-white eye (of the male only). The bill is shorter than that of the Rusty Blackbird, being approximately intermediate between the conical bill of the Brown-headed Cowbird and the long, tapered bill of the Common Grackle. The eyes of the males are noticeably more conspicuous than the pale yellowish eyes of Common Grackles and Rusty Blackbirds. Female Brewer's is a rather nondescript bird, with the same brownish-gray and unstreaked plumage of most female cowbirds, but Brewer's are larger than cowbirds with somewhat longer bills and tails. Female Brewer's have dark eyes, whereas female Rusties have pale eyes (though the light eye may be difficult to see at a distance).

My experience with Brewer's Blackbirds in the Carolinas might also be helpful to persons searching for the species. I birded eight years at Raleigh, N.C., and never saw the species there or elsewhere in the state. In 1970 I checked out a report of a male Brewer's from a wooded yard at Raleigh; the bird was a small female grackle. In eight years of birding at Clemson, S.C., I have seen Brewer's twice in November and three times in March. Despite the most intensive search for them in December to February, I have yet to find one in winter. On three occasions the birds were feeding in cattle feedlots, and on another were feeding with cattle in a pasture where the grass was a few inches high. On the fifth occasion the birds (a flock of ten) were in a plowed field. At Clemson I have seen Rusty Blackbirds feeding on lawns on many occasions, but all Brewer's have been in agricultural areas. HARRY E. LeGRAND JR.

Saving The Birds

A pair of Condors under observation in California squabbled and pushed their egg out of the nest. Forty days later, another egg was laid and is being watched closely.

In Maryland, 45 pairs of Bald Eagles have been found incubating. These observations around Chesapeake Bay are encouraging.

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Backyard Birding

... with Gail T. Whitehurst

So That's Where They Were!

Early in the morning of 15 February 1982, I had the thrill of a life time. When I arose from bed and came into the den, I noticed one Evening Grosbeak on one of my feeders. Then in a mater of minutes grosbeaks came down in great quantities. I counted 50 shuttling back and forth from the hemlock tree to my feeders. Then again, on 16 and 17 February I recorded 50 each day. I recorded anywhere from 4 to 35 each day until 22 April, when a flock of 35 lighted in the hemlock tree and then flew away. That was the last we saw of the grosbeaks. The location is in Transylvania County, N.C., about 10 miles SE of Brevard and 5 miles S of US 276, about 1.5 miles from the South Carolina border.

On 12 December 1981, I was sitting in my den when I noticed seeds falling from the hemlock trees in my yard as though it were snowing. I got up to check the reason, and discovered the tree was filled with Pine Siskins. Then they started coming down to my feeders. I counted 45. On most any given day from then on until 7 April 1982, I could see from 35 to 40 on the feeders, usually in the early mornings.—ROSA LEE HARDIN, Star Route, Cleveland, S.C. 29635

The Cowbird Connection

As a good many of you readers know, I have spent a considerable amount of time and energy observing Brown-headed Cowbirds. Why? Simply because they are there—at a time when backyard birding is rather dull and routine. I had a fascinating experience with one of five fledglings that were "dumped" on me by their host parents, Rufous-sided Towhees. This has happened a number of years. When the towhees were ready to turn these over-sized, noisy, and worrisome youngsters out on their own, they led them to my yard where they quickly learned to take my hand-outs.

From 9 August to 10 September 1979, I had the opportunity to study five cowbird flgedlings rather intensively (and kept copious notes). I learned a number of interesting facts relating to their behaviour. For instance, a cowbird fledgling is easily "tamed," showing little fear of humans—especially those offering food.

Also, the little fellows soon recognize their own kind and tend to stick together once the host parent has ceased to feed them.

Cowbird number five appeared on 27 August, being fed by a male towhee. On 30 August, the towhee ceased to feed the female fledgling, and she came to me frequently for hand-outs. She became quite tame. She could recognize the sound of my voice and often came flying to me for food. Once she even came up on my back porch and looked in the door, upon hearing my voice. When she finished eating her morning meal, she wandered about the lawn, drinking droplets of dew from the grass and occasionally catching and eating small insects. She discovered that by coming right to my feet, she could get all the food she wanted without having to hassle the other hungry birds I was feeding. She often stayed nearby my husband and me as we sat out on the lawn in the evenings, and on one occasion lit on his hand for a moment. She appeared to trust us completely. She was easy to identify as she had one white primary feather on the left wing.

On 7 September something happened which so impressed me that I will never forget it. I quote here from my notes:

> "After supper I fed him* (#5 cowbird) and he stayed around. He followed me all around the yard. I wondered why he was so fearless and why he stayed so near my feet. Noticed he would catch and eat tiny insects from time to time. It occurred to me that perhaps he, being a cowbird, was instinctively following at my feet to find any insects which I might stir up as I moved about the lawn. I kept moving about the grass, scuffing my feet from time to time. Apparently this did cause insects to appear, for little cowbird would dart this way and that and picked up things too small for me to see. As it grew darker, he kept looking at sky often. Finally he flew off into trees."

*At time of this incident, I did not know sex of bird.

I last saw and fed #5 cowbird on 10 September. In the days following the first time I "played cow" with her, I did it several more times. The bird seemed eager for me to stir up insects and the "game" might last for 10 to 15 minutes. The more insects she caught, the less hand-out food she wanted. She always kept an eye on me as I moved about so as to avoid being stepped on, but, at the same time was on the alert for any insects flushed in the process. It really was a lot of fun and must have been quite a sight had anyone been watching. During these days the little bird appeared to be growing rather restless. She had also begun her post-juvenal molt. When she disappeared (as the young cowbirds always do), it never ocurred to me that I would see her again.

In early April of 1980, two female Brown-headed Cowbirds came near me as I was tossing out food to the many "freeloaders" in my backyard. One of these females, in the company of a male, returned at least once every day for food for about a month or so. The male, although shy and suspicious at first, began to partake of the food, too. He never came as close as the female. On 18 May the

(Continued on Page 86)

General Field Notes

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Recent Evidence of Sharp-Shinned Hawks Breeding in North Carolina

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Although there have been at least a half-dozen breeding, or probable breeding, records of Sharp-shinned Hawks (*Accipter striatus*) in North Carolina (Pearson, Brimley, and Brimley, Birds of North Carolina, revised by Wray and Davis, 1959), additional records are obviously noteworthy.

On 24 July 1970, near the summit of Mount Mitchell, Mueller saw an adult male pass food to a juvenile female in flight. We have seen this behavior only when parents feed fully-fledged young.

On 17 June 1974, Mueller saw a male Sharp-shin in the Mason Farm area about 5 km SE of Chapel Hill. The bird was carrying food and was flying at a height of more than 50 m, and proceeded in a straight line for more than 500 m until it disappeared from view behind trees. We have seen such behavior only when the male is carrying food to the nesting female or young.

On 2 May 1981, Meyer saw an adult male and adult female Sharp-shin apparently defending a nest near the Eno River, 7 km NE of Hillsborough. The nest, with the female in incubating position, was found on 3 May. The nest was located against the trunk (18 cm dbh), of a 15- to 16-m Virginia Pine (*Pinus virginiana*) at a point 12 to 13 m above the ground. The nest tree was on a 30- to 40-degree slope about 200 m from the river and 9 m from a disused logging road. The site was near the edge of a stand of Virginia Pines, adjacent to an extensive oak/hickory forest. The diameter of the nest and the sticks used in its construction were typical of the nests we have seen in Maine and eastern Canada. The depth of the nest was greater than any we have seen and it was built in a tree and grove offering much less concealment than any other nest, which were all in spruces (*Picea* sp.). One food delivery by the male was seen on 3 May. The female received the prey 30 to 40 m from the nest after a brief vocal exchange. On 13 May, the female remained in incubating position during the entire 3-hour observation period. The male was not seen during this time, though, in our experience,

TABLE 1. Observations of Sharp-shinned Hawks during the breeding season, 1960-1981.

County	Date	Observer(s)	Reference[1]
		Western North Carolina	
Ashe-Allegheny	30 June 1980	Lynch & Moore	45:20 (1981)
Avery	22 May 1976	Wentworth	40:91 (1976)
Buncombe	23 June 1972[2]	Lee	Unpublished
Caldwell	30 May 1981	Sneeden	46:18 (1982)
		Central North Carolina	
Chatham	23 July 1977	Pullman & Teulings	42:17 (1978)
Cumberland	14 June 1978	Crutchfield	43:22 (1979)
Durham	29 July 1975	Teulings	40:18 (1976)
Durham	3 July 1976	Pullman	41:14 (1977)
Guilford	22 June 1975	Carter	40:18 (1976)
Vance	6 July 1980	Tove	45:20 (1981)
Wake	23 July 1974[2]	Wright	38:96 (1974)
Warren	4 June 1974	LeGrand	38:96 (1974)
		Eastern North Carolina	
Carteret	22 June 1970	Wade & Fussell	34:108 (1970)
Carteret	27 May 1972	Fussell	36:94 (1972)

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[1] All references are to *The Chat.*

[2] Two individual birds were seen.

such absences are not unusual early in the nesting cycle. Neither adult was present on 18 May; we found no signs of young, egg remains, or nest predation. Occasional searches in late May, June, and early July provided no evidence of the hawks or any possible explanation for the pair's apparent failure.

There have been no other definite, or even strongly suggestive, records of Sharp-shins breeding in North Carolina since 1959. Stupka (Notes on the Birds of Great Smoky Mountains National Park, 1963) mentions four records for both June and July for the years 1928 through 1961, but does not indicate how many of these were seen in the North Carolina portion of the park. Stupka lists only one record that we interpret as clear evidence for breeding; on 2 June 1954, Tanner saw a bird carrying food near Mount LeConte (Tennessee). Two other works have indicated Sharp-shins as being present in summer, at least rarely, but neither presents details: Johnston, J. Elisha Mitchell Sci. Soc. 80: 29-38 (Highlands, Cashiers, and vicinity); and Simpson, J. Elisha Mitchell Sci. Soc. 88: 244-251 (Mount Mitchell State Park). A summary of all other know observations of Sharp-shins in North Carolina in summer is presented in Table 1.

The presence of a single individual is dubious evidence of breeding. We know very little about the age when most Sharp-shins breed and what portion of first-year birds complete the migration to northern breeding areas. Sharp-shinned Hawks have been observed in migration at the Cedar Grove Ornithological

Station in southeastern Wisconsin as late as 30 May; in the 9 years the station was operated in the spring, we conducted observations for a total of only 9 days in June with the latest date on 8 June (Mueller, unpubl.). It is possible that a few birds may move northward in June.

The simultaneous sighting of two birds without any evidence of behaviors associated with breeding is also only tenuous evidence for breeding. The female remains in the immediate vicinity of the nest from just before egg-laying until the nestlings are about 3 weeks old, a total period of about 8 weeks. During this time the male provides all the food for his family and is seen in the vicinity of the nest only during the few minutes (maximum) elapsed during the delivery of prey to the female. This exchange involves considerable vocalizations. Incubating females may sit tight and go unnoticed when a nest is approached, but most will exhibit some form of defensive behavior, particularly after the young have hatched. Defensive behaviors range from flying about, vocalizing, to attacks on the human intruder. The young remain together for about 3 weeks after fledging and this is the most likely time to see more than one Sharp-shin in a small area. Young birds frequently perch in the same or adjacent trees, and interact frequently, stooping at each other and vocalizing. The approach of an adult results in a frenzy of vocalizing and young able to fly will meet the approaching adult and chase it until the food is dropped. The bird obtaining the food item is usually chased by one or more siblings who have failed to receive food, vocalizing as they fly about.

Anyone seeing two Sharp-shins together in summer should pause for an hour or two and attempt to observe interactions or other behaviors suggesting breeding. Every attempt should be made to determine the age and sex of the birds (see Mueller, Berger, and Allez, American Birds 33:236-240 and Bird-Banding 50:34-44).

Sighting of a Swainson's Hawk in North Carolina

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On 21 March 1982, approximately 30 minutes before sunset, we saw an adult, light-phase Swainson's Hawk (*Buteo swainsoni*), at Lake Benson. Lake Benson is near Garner, Wake County, N.C., and is approximately 8 miles S of Raleigh. The large Buteo was soaring along the line of trees that separates Lake Benson from the fields to the east. After remaining in sight for approximately 10 seconds and approaching us to within about 7.5 m, the bird turned eastward and disappeared behind the trees. We were unable to find the bird again that day or on subsequent days. At the time of the sightings the sun was low but unobscured and was over our right shoulders. We were facing southeast from the Lake Benson

Causeway, and the bird was about 100 degrees from the sun. Each of us used 7 x 35 binoculars.

Most noticeable field marks were white wing linings and body contrasting strongly with dark flight feathers, with dark head and breast region, and with dark tail. Some white was also present in the face, chin, and throat. Wings were long and slender-appearing for a Buteo, and when the bird was at a good angle, a weak dihedral was apparent in the wings. No banding was apparent in the tail from either above or below, although some faint banding was noticeable on the flight feathers. It is the experience of Tarbet that the banding of the tail is seldom easily seen in Swainson's Hawk, with the tail often presenting a general gray color as in the present case.

We are confident that the bird was a Swainson's Hawk because of wing, body, and head pattern; shape and size; and wing position while soaring. It also matched quite closely the numerous members of this species seen by Tarbet in the West. The bird is rare in North Carolina with only three previous reports (Chat 44:76 and 44:76-78).

Mike Tove, Harry LeGrand, Paul Sykes, and others mentioned the possibility that this bird was part of the small winter population in Florida, despite the fact that most of that population is immatures. We can offer no more likely explanation for the presence of the bird in the Raleigh area and conclude from the failure to locate the bird later that it was migrating.

We thank the following for their consultation in this matter: John Connors, Craig Gorsuch, Bob Hader, Ken Knapp, Harry LeGrand, Paul Sykes, Mike Tove, Bill Wagner, Jeff Walters, and Joe Wonderle.

Screech Owl Nest in a Box on the Ground

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On 13 May 1981, Clemmer found a Screech Owl (*Otus asio*) with two large downy young in a nest box (inside dimensions: 25 x 25 x 56 cm; entrance diameter: 10 cm) that was resting on the ground at the Savannah River Plant, Aiken County, S.C. The site was dominated by 40-year-old Longleaf Pine (*Pinus palustris*), Bluejack Oak (*Quercus cinerea*), and Turkey Oak (*Quercus laevis*) with little ground cover other than pine straw. As a result of forest management activities and the young age of the stand, few trees were large enough to provide nesting cavities for this species, although an identical unoccupied nest box attached at 2 m on a pine was within 100 m of the box on the ground. The bottom of the box on the tree was covered by pine straw; the box on the ground had about 8 cm of wood shavings on the bottom. The birds were not disturbed on 13 May. When the box was checked by Jackson on 27 May, the birds were gone, though one infertile Screech Owl egg was found.

While Screech Owls are well known to accept nest boxes as substitutes for natural nesting cavities (Van Camp 1975, Bent 1938, Alland 1937), they usually choose nest sites well above the ground. The only similar report we have found was of a nest in a stump; in that case, the bottom of the nest was below ground level (Bent 1938).

Work at the Savannah River Plan has been generously supported by grants to Jackson from the U.S. Department of Energy and from the Savannah River National Environmental Research Park. We thank personnel at the Savannah River Ecology Laboratory for their continued interest in our studies.

LITERATURE CITED

Alland, H.A. 1937. Activity of the Screech Owl. Auk 54:300-303.

Bent, A.C. 1938. Life Histories of North American Birds of Prey. Part 2. U.S. Nat. Mus. Bull. 170.

Van Camp, L.F., and C.J. Henny. 1975. The Screech Owl: its life history and population ecology in northern Ohio. North Am. Fauna No. 71.

First North Carolina Record of a Wheatear

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About 0800 on 11 October 1981, I saw a small flock of Eastern Bluebirds alight in a Flowering Dogwood tree in the front yard of my home at Franklin, Macon County, N.C. I noticed one of the birds was unusually light colored for a bluebird. With binoculars I observed, from a distance of about 40 feet, that the bird in question was not only a pale brown color on both top and bottom but also did not have the hunched-over look of a bluebird.

It was definitely a bird that I had never seen before. My first view of it, as it perched in the dogwood tree, was a profile, and I noticed a thin bill, possibly even a little thinner than that of the bluebird, as well as a pale brown color on the head, back, underparts, and upper half of the wings. The lower half of the wings was very dark, maybe even black, and what I could see of the rear portion of the tail was black also. The bird was constantly flicking its wings and bobbing up and down, and each time it flicked its wings I could see some white on its rump.

I went outside to get a closer look and was able to approach to less than 20 feet: I was now at about a three-quarter angle to the rear of the bird and for the first time noticed a hint of a pale eye stripe, not quite white. I also noticed the white of the rump was far more extensive than I had thought at first. When the bird became alarmed at my approach and flew, I could see a really tremendous contrast between the bright white of the rump and the black of the tail.

The bird then flew to some power lines, and I went back to the house, hoping it would return. About 15 minutes later I noticed the bird was with a small flock of Song Sparrows. At this time whenever the bird flicked its wings I was able to observe a pattern between the black and white on the tail. The rear portion of the tail, about one-third, was black and then a black stripe, maybe one-third the width of the tail, ran up the tail. The entire rump and rest of the tail were bright white except for a very small strip—about 1/4 inch at the very tip of the tail—that was buff colored.

I saw the bird 8 or 10 different times between 0800 and 1030, when the sun burned off the overcast and the day warmed up. I was unable to locate it after that time, nor could I find it the next two mornings. I believe the bird was a Wheatear (*Oenanthe oenanthe*), a species previously reported only once from the Carolinas. Andrew Simons watched one at close range while golfing at the Charleston County Club, 1 October 1960. He noted the inverted T and rump patch together with the pumping action. Although E.B. Chamberlain (Chat 24:102) accepted this report and stated that the observation places the species on the South Carolina Hypothetical List, the Wheatear is not mentioned in the 1970 edition of *South Carolina Bird Life,* as revised by Burton. The species is, however, listed in *Birds of the Carolinas* (Potter, Parnell, and Teulings, 1980).

[NOTE: Publication of the above field note adds the Wheatear to the North Carolina state bird list with Provisional I status.—DSL]

Confirmation of Breeding Red Crossbills in the Mountains of North Carolina with Notes on Nesting Behavior

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Although there is considerable evidence for Red Crossbills (*Loxia curvirostra*) breeding in the southern Appalachian Mountains and in North Carolina (Johnston 1963, Simpson 1974, Swindell 1974, Sykes 1974, Carter 1976, Phillips 1979), no one has reported finding an active nest with eggs or nestlings. Consequently, little has been recorded on the breeding biology of the species in this region.

On 5 September 1981, Joe Williams and I discovered a female Red Crossbill building a nest in a White Pine (*Pinus strobus*) at the edge of a gravel parking lot off of Plemmons Drive on the Appalachian State University campus in Boone, Watauga County, N.C. The altitude at this site is approximately 1006 m.

About 23 m in height with a d.b.h. of 62 cm, the nest tree is part of a large, fairly uniform stand of White Pines that cover an area of roughly 3 ha. These pines, like many others throughout the county, were heavily covered with cones in September 1981. The nest was placed in the fork of a branch 3.5 m from the main trunk and 19 m from the ground. Although visible from below, the nest was partially concealed from above by small pine boughs. Because the limb pointed south and extended over the parking lot, it received sunlight during most of the daylight hours.

On 5 September between 1700 and 1900, the female made 10 trips to the nest with building material. She collected epiphytic mosses, Tulip Poplar bark fibers, and unidentified materials, using her bill, feet, and body to construct the inner cup of what appeared to be an almost completed nest. Between 1300 and 1630 on 6 September, the female made approximately 21 visits to the nest with material. Her visits were usually no longer than 3 minutes, and most were between 15 and 30 seconds.

Although the male usually accompanied the female as she searched for nesting material, I never observed him carrying material. As the pair flew to and from the nest, I heard the characteristic "kip-kip-kip" call notes. Often as the female worked on the nest, the male positioned himself at the top of the nest tree or some nearby tree and sang a series of notes that were quite musical.

Williams first noted the female incubating on 11 September. Since I later discovered four eggs in the nest, I conjectured that they were laid from 7 to 10 or from 8 to 11 September. If the female started incubating after she laid the last egg, then the incubation period started on either 10 or 11 September. On 12 September I observed the female incubating, turning her eggs, and preening her belly and breast. On 13 September between 0700 and 1200, the female had three attentive periods totaling 287 minutes and three inattentive periods totaling 13 minutes. The male continued to sing from the tops of the surrounding trees. On a few occasions the female called softly from the nest. Although I never observed the male incubating, he fed the incubating female.

On 13 September, the male and the female were associating with three heavily streaked juveniles that still had uncrossed bills, and twice the male fed two of the young birds regurgitated food. The juveniles frequently followed the male throughout the nesting period, and one of the juveniles begged from the breeding female. Thus I conclude that the nest I found was at least the second during the 1981 season for this pair of Red Crossbills. On 22 September I photographed the incubating female (Fig. 1). Returning to the nest at 0900 on 26 September, I found four newly hatched chicks. From their appearance, I estimated that the chicks were just a day old and had probably hatched on the 25th. If the female did indeed start incubating on the 10th or 11th, then the incubation period was approximately 14 or 15 days. Lawrence (1949) states that the incubation period for this species is "probably 14-18 days."

At a distance of 3.5 m I continued to make observations until 1300 on 26 September. During this period the male fed the offspring two times and the brooding female four times. As the male fed the female, she tilted her head back, fluttered her wings, and begged as if she were a newly fledged bird. After receiving regurgitated food from the male, the female usually waited a minute or two and then began to feed the nestlings. This involved a slow movement of her bill in and out of the nestling's mouth. As she drew her bill out, a white, watery, regurgitated substance was pushed into the nestling's mouth with her tongue. She normally fed the nestlings until they stopped begging. Before returning to brood, she usually checked the nest for fecal sacs, and if she found one, ate it. The male also ate fecal sacs. Although the breeding pair most often ate seeds from White Pine cones, on one occasion during the nestling period the male captured and ate a green caterpillar.

I made my last observations of 3 October, but Williams checked the nest between 7 and 13 October. On the 12th at 1630 he noted that the nestlings were on

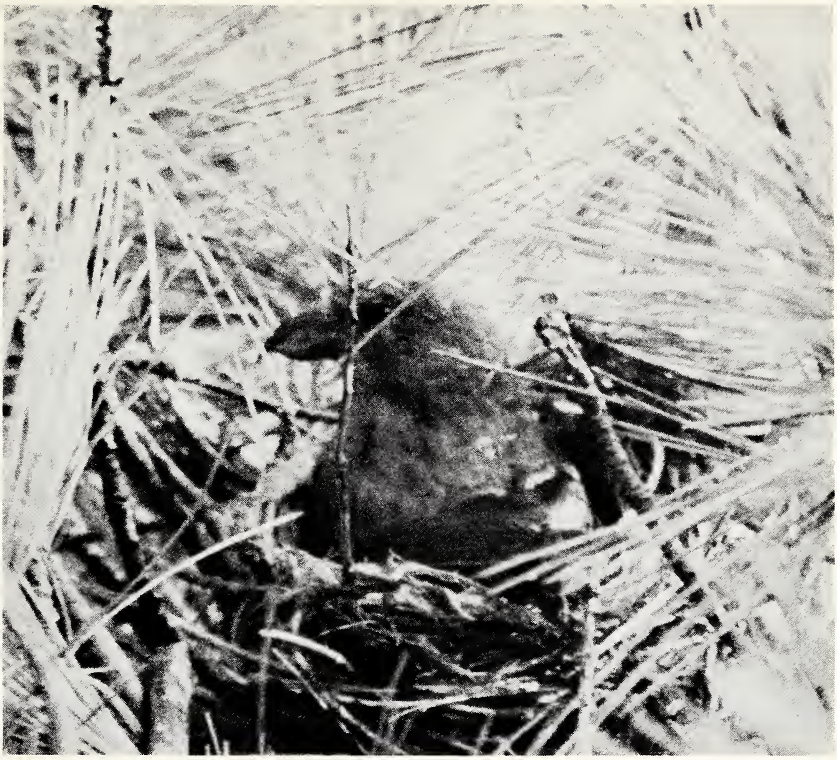

Fig. 1. A female Red Crossbill incubates her eggs in a nest at Boone, N.C., on 22 September 1981. (Photo by Tom Haggerty)

the edge of the nest, flapping their wings. When he returned on the 13th at 1305 only one nestling remained at the nest, and at 1400 it also had left. If the eggs hatched on 25 September and the birds fledged on 13 October, then the nestling period lasted approximately 19 days. Synder (1954) reports a nestling period of 15 to 16 days. Lawrence (1949) found in her studies that the young remain in the nest "at least 17 days," and Skutch (1976) gives a nestling period of 18 to 24 days.

The extreme temperatures during the nesting period were 26° C (79° F) and -1° C (30° F). The average temperature was 14° C (56.5° F), and 5.3 cm of precipitation was measured (National Oceanic and Atmospheric Administration 1981).

I thank Joe Williams for his help in the field and Libbus Haggerty and Tom Howerton for their help with this manuscript.

LITERATURE CITED

Carter, J.H. 1976. Probable breeding of the Red Crossbill in the North Carolina Sandhills. Chat 40:100.

Johnston, D.W. 1963. Further evidence of Red Crossbills breeding in North Carolina. Chat 27:81-82.

Lawrence, L. de K. 1949. The Red Crossbill at Pimisi Bay, Ontario. Canadian Field Nat. 63:147-160.

National Oceanic and Atmospheric Administration. 1981. Climatological Data, N.C. Vol. 86, No. 9 and No. 10.

Phillips, R.A. 1979. Notes on summer birds in the Canadian zone forest of Roan Mountain. Migrant 50:73-76.

Simpson, M.B., Jr. 1974. Red Corssbill observations in western North Carolina. Chat 38:44-45.

Skutch, A.F. 1976. Parent Birds and Their Young. Univer. Texas Press.

Swindell, M. 1974. Fledgling Red Crossbills at Newfound Gap. Chat 38:43-44.

Sykes, P.W. 1974. Additional information on the Red Crossbill breeding in the lower piedmont of North Carolina in 1967. Chat 38:42-43.

Snyder, D.E. 1954. A nesting study of Red Crossbills. Wilson Bull. 66:32-37.

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In western North Carolina, Asheville bird club members are assisting U.S. Fish and Wildlife personnel with a survey of Great Horned Owls in preparation for a planned Peregrine Falcon hacking program. For about 7 weeks they observed nesting owls at Lake Julian Park from a blind constructed some 35 feet above ground. An article in *Asheville South*, 22 June 1982, reported that the adult owls were aware of the visitors and never went to the nest while anyone was in the blind. Park officials protected the two fledgling owls by not releasing news of their presence until after they left the nest.

(Continued from Page 77)

female cowbird was feeding on some birdseed. I tossed out some of my food and she flew to my feet and ate. Then, as she did not make any move to leave, I began walking slowly about the lawn. The cowbird followed me. I began scuffing my feet through the grass and, to my surprise and delight, she followed me and began looking for insects. However, this early in the spring there were none to be found, so she gave up and flew away. This pretty well convinced me that she had to be my little #5 cowbird of the summer preceding—no other bird would have responded to my actions in that same manner. We never did have the opportunity to "play cow" again. Oh how I wished that I had been able to have banded that little fledgling!

Although the pair of adult cowbirds stayed around until July, I never did have any new young fledglings to feed and study that summer—nor the next one, either. Maybe this year, come hot, sticky, dull August, I will once again have the chance to "play cow."—GAIL T. WHITEHURST, 1505 Brooks Avenue, Raleigh, N.C. 27607

BRIEFS FOR THE FILES

HARRY E. LeGRAND JR.

(All dates winter 1981-82; CBC = Christmas Bird Count)

RED-NECKED GREBE: One was seen in the ocean at Oregon Inlet, N.C., on 29 December by Douglas McNair.

EARED GREBE: Lou Fink noted a very rear inland bird at City Lake in Rocky Mount, N.C., on 30 January and 1 and 2 February.

WHITE PELICAN: Single individuals were noted at Santee National Wildlife Refuge on Lake Marion, S.C., in November (Evelyn Dabbs et al.); in the Charleston, S.C., area all winter (Dennis Forsythe); and at Southport, N.C., on 6 February (Charles Fox).

BROWN PELICAN: This species continues to increase in numbers in North Carolina waters, being seen farther inland than usual in the tidewater section. Brian Horsley reported pelicans at Elizabeth City during the summer of 1981; John Fussell saw six at a landfill near Newport on 14 January; Tom Wade reported 15 at Cherry Point on 14 January; and four were noted by Hugh Sterling from 13 to 16 February at Washington.

GANNET: An estimate of 10,000+ was made at Cape Hatteras point, N.C., on 13 February by John Fussell, Allen Bryan, and Ricky Davis.

GREAT CORMORANT: The only winter reports came from South Carolina: immatures seen by Julia Hill at the Ashley River near Charleston on 2 November and by Cheryl Phillips and Julia Hill at Huntington Beach State Park on 19 January.

YELLOW-CROWNED NIGHT-HERON: An immature was notable on the Bodie-Pea Island CBC, N.C., on 30 December, as seen by Harry Armistead and Will Russell at Bodie Island.

AMERICAN BITTERN: Rare for the piedmont in February was one seen on the 6th at Jordan Reservoir in eastern Chatham County, N.C. (Bill and Margaret Wagner, Johnnie Payne).

WHISTLING SWAN: Winter reports from outside the usual range were from Burlington (Allen Bryan), Whispering Pines (Roberta Davis), Raleigh (Harry LeGrand et al.), and Roanoke Rapids (LeGrand) in North Carolina; and from Santee refuge (Cheryl and Eddie Phillips et al.) in South Carolina.

BRANT: Rare as far south as Beaufort Inlet, N.C., were 16 seen on the Morehead City CBC on 20 December by Wayne Irvin and Chris Marsh.

WHITE-FRONTED GOOSE: An immature spent the entire winter at Pea Island, where it was seen by dozens of birders.

SNOW GOOSE: An adult and an immature "Blue Goose" were observed by Harry LeGrand and others near Townville, S.C., on 6 and 10 December; and an adult "Blue" was noted near Winston-Salem, N.C., from 24 December to 2 January by Ramona Snavely and Charles Frost.

ROSS' GOOSE: Harry Armistead and party saw one in flight (with Snow Geese) at the Bodie Island lighthouse on 30 December, the first Carolina record away from neighboring Pea Island.

PINTAIL: This species is rare inland in winter; thus, noteworthy were two at

Whispering Pines, N.C., on 22 December (Jay Carter); one near Burlington, N.C., on 17 December (Allen Bryan); and one near Townville, S.C., on 24 January (Harry LeGrand).

BLUE-WINGED TEAL: Very rare inland in winter were two noted by Ross Jervis at Jordan Reservoir on the CBC there on 3 January. Bill and Margaret Wagner observed this species there on 2 March, an early date for migrant birds.

EUROPEAN WIGEON: A male was seen by many birders at a pond on Bodie Island on 29 and 30 December, and two males were observed there on 31 December (Mike Tove et al.).

REDHEAD: Locally notable counts were 10 at Jordan Reservoir on 30 January (Steve Graves) and eight at Lake Cammack, near Burlington, on 29 January (Allen Bryan).

GREATER SCAUP: Inland reports, all in North Carolina, were of two at Woodlake (formerly called Lake Surf), near Vass, on 2 December and one there on 8 January (Tom Howard); one at nearby Lakeview on 2 January (fide Jay Carter); three near Fayetteville on 14 January (Philip Crutchfield); and four near Burlington on 16 January (Allen Bryan).

LESSER SCAUP: An excellent inland total was 500 seen on the Savannah River Plant CBC, S.C., on 19 December by Anne and Vernon Waters.

COMMON GOLDENEYE: Five females were observed by Bill and Margaret Wagner on upper Jordan Reservoir, near Chapel Hill, on 9 March.

KING EIDER: A first-year male was seen by Chris Marsh and Wayne Irvin on the Morehead City CBC on 20 December. A female was seen in Hatteras Inlet, N.C., on the Cape Hatteras CBC on 31 December by Mike Tove, Harry LeGrand, and Bob Lewis. Apparently the same bird was observed in the area on 17 January by John Fussell and party.

WHITE-WINGED SCOTER: One was found dying on Par Pond, at the Savannah River Plant, S.C., in early February. Several other scoters were on the lake, according to Lehr Brisbin.

COMMON MERGANSER: Three females were seen at Winston-Salem from 2 to 9 January by Royce Hough, Hop Hopkins, and Fred Hill.

RED-BREASTED MERGANSER: Five birds were noted on the Chapel Hill CBC on 27 December, fide Bill Wagner.

VULTURES: Ricky Davis found a roost north of Butner, N.C., on 7 February that had 125 Turkey and 45 Black Vultures.

ROUGH-LEGGED HAWK: Singles, all in the light phase, were observed in North Carolina on the Durham CBC on 20 December (Bill and Margaret Wagner), on the Jordan Lake CBC on 3 January (Angelo Capparella, Mike Godfrey), and near Fayetteville on 22 February (M.E. Whitfield).

BALD EAGLE: Rare inland in winter, all in North Carolina, were two adults seen at Pee Dee National Wildlife Refuge on 19 December by Douglas McNair, an immature seen by McNair on 2 January at Rockingham, two immatures noted by Lou Fink at the Tar River Reservoir near Rocky Mount on 1 March, and one seen at Beaverdam Reservoir north of Raleigh on 18 March by Margaret Wagner.

PEREGRINE FALCON: Fran Irvin observed one perched on a transmission tower at Raleigh on 6 January. Less unusual, though rare for Carteret

County, was one seen by John Fussell at Morehead City on 8 and 18 February.

MERLIN: Inland birds were reported from the Savannah River Plant on 19 December (Anne and Vernon Waters), on the Jordan Lake CBC on 3 January (Jim Keighton), near Fayetteville on 19 January (Philip Crutchfield), at Six Mile, S.C., on 4 February (Douglas McNair), and at Jordan Reservoir on 13 March (Don Tarbet).

AMERICAN OYSTERCATCHER: As this species does not usually winter at Oregon Inlet, N.C., five seen there on 14 February by John Fussell might represent early spring migrants.

WILSON'S PLOVER: Notable for winter was a plover at Bird Shoal near Beaufort, N.C., as seen by Jeff Walters on 6 February.

GREATER YELLOWLEGS: One was found on the Raleigh CBC on 19 December, fide Robert Hader.

SPOTTED SANDPIPER: North of the winter range was one seen by Ricky Davis at Hatteras village on 10 January.

LEAST SANDPIPER: Four were observed by Jim and Owen McConnell on the Durham CBC on 20 December, and Harry LeGrand saw one on the Roanoke Rapids, N.C., CBC on 27 December.

DUNLIN: Sidney Gauthreaux and Harry LeGrand found five in Anderson County, near Fair Play, S.C., on 6 December; and one was seen on the Raleigh CBC on 19 December, fide Robert Hader.

JAEGERS: A Pomarine and two Parasitic Jaegers were noted on the Bodie-Pea Island CBC on 30 December (fide Paul Sykes). Larry Crawford saw a Parasitic on the Morehead City CBC on 20 December, and he had eight unidentified jaegers at Pine Knoll Shores, N.C., on 4 December.

GLAUCOUS GULL: The Cape Hatteras CBC on 31 December had three individuals of this species, fide Carl Perry. John Fussell and others observed one in first-winter plumage at the Newport, N.C., landfill from 22 to 29 January.

ICELAND GULL: An immature was seen by Harry Armistead and Douglas McNair at Hatteras on 31 December, and another immature was seen in January at a landfill in New Hanover County, N.C., by Greg Massey and Jim Parnell. At the Newport landfill was an adult "Kumlien's" on 22 January (John Fussell) and 13 February (Wayne and Fran Irvin), as well as a first-year bird on 23 to 26 January (Fussell et al.). An adult seen by Fussell at nearby Morehead City on 8 February may have been the one at Newport.

LESSER BLACK-BACKED GULL: Very rare for South Carolina was one seen at Pawleys Island on 30 January by members of the Carolina Bird Club, fide Dennis Forsythe. In North Carolina, four were seen on the Cape Hatteras CBC on 31 December, fide Carl Perry. One was seen at Wanchese on 1 January by John Fussell and others, another was noted at the New Hanover Landfill in January by Greg Massey, and one was seen at Cape Hatteras point on 13 February by Allen Bryan et al. Fussell and others had three or four individuals at the Newport landfill from 14 January to 26 February, one or two of which were in third-winter plumage. One of the adults at Newport was collected (specimen to the North Carolina State Museum), a first such record for the Carolinas.

HERRING GULL: A sharp cold snap in mid-January caused a major fish kill on Carolina lakes, resulting in very large numbers of Herring and Ring-billed Gulls being attracted to the lakes. Noteworthy inland Herring counts were 80 at Beaverdam Reservoir on 31 January (Ricky Davis), 50+ at Kerr Scott Reservoir near North Wilkesboro, N.C., on 14 February (Tom Haggerty), nine immatures at Fayetteville on 14 January (Philip Crutchfield), and five immatures in mid-January at Winston-Salem, N.C. (Ramona Snavely et al.).

RING-BILLED GULL: Excellent inland totals were 2000 estimated near Durham on 20 February (Joe Lockwood), 915 at Beaverdam Reservoir on 31 January (Ricky Davis), 400+ at Clemson in late winter (Harry LeGrand), and hundreds in the Winston-Salem area, even in open fields, during late winter (fide Ramona Snavely).

BLACK-HEADED GULL: An adult was carefully studied at the Newport landfill by John Hardwick, Greg Massey, John Fussell, and others from 23 to 27 January.

LAUGHING GULL: Larry Crawford estimated that 250,000 were seen migrating along Bogue Banks in Carteret County, N.C., on 9 and 10 December, and 7000 were tallied on the Morehead City CBC there on 20 December. Yet, John Fussell saw none in the county from mid-January to early March, indicating the misleading nature of CBC totals for this species.

BONAPARTE'S GULL: A good count for the North Carolina Sandhills region was 25 at Woodlake, near Vass, on 8 January (Tom Howard).

LITTLE GULL: An adult was a good find at Cape Hatteras point on 13 February, as noted by John Fussell, Allen Bryan, and Ricky Davis.

GULL-BILLED TERN: Very rare in winter was an individual seen flying around a pond at McClellanville, S.C., on 5 January by Jay Shuler.

CASPIAN TERN: Ricky Davis saw one on the Morehead City CBC on 20 December.

ALCID (sp.?): A large alcid—Razorbill or murre—was seen a few miles off Hatteras Inlet on 31 December by Carl Perry.

YELLOW-BILLED CUCKOO: A lingering individual was observed by Cheryl Phillips at Moncks Corner, S.C., on 6 December.

SHORT-EARED OWL: This species winters in the weedy lakebeds of newly constructed reservoirs, at least in north-central North Carolina. The Durham CBC had five on 20 December at the Falls of the Neuse Reservoir; and five were on the Chapel Hill CBC, 27 December, and three were on the Jordan Lake CBC, 3 January, all at Jordan Reservoir. Another was seen by Lance Peacock at a pasture on the Roanoke Rapids CBC on 27 December.

SAW-WHET OWL: A good find was an owl seen at dawn at Frisco, N.C., on the Cape Hatteras CBC on 31 December by Merrill Lynch and John Fussell.

WHIP-POOR-WILL: This secretive bird was flushed twice during the winter: by Bob Holmes near Long Lake, Craven County, N.C., on 23 December and by Anne Waters and party at Aiken State Park, S.C., on 24 December.

HUMMINGBIRD (sp.?): A female or immature, with no rusty-colored feathers, was seen in a Beaufort, N.C., yard through 18 December by Stanley Potter. The bird was probably a Ruby-throated.

RED-COCKADED WOODPECKER: A record national CBC total was the 66 birds tallied on the Southern Pines, N.C., count on 2 January (fide Jay Carter).

HORNED LARK: A high count for the Sandhills was a flock of 100 near Mangum, N.C., on 19 December (Douglas McNair).

TREE SWALLOW: As many as 5000 were observed in the Morehead City-Beaufort area from late January through February, as reported by John Fussell.

FISH CROW: Several wintered again near Townville, S.C., as noted by Harry LeGrand. They were with large flocks of Common Crows in fields and pastures, unusual habitats for Fish Crows in the piedmont.

LONG-BILLED MARSH WREN: Jim and Owen McConnell observed two on the Durham CBC on 20 December.

BLUE-GRAY GNATCATCHER: Over a month late was a gnatcatcher seen by Ricky Davis in northern Wake County, N.C., on 5 December.

WHITE-EYED VIREO: Somewhat to the north of the winter range were two on the Cape Hatteras CBC on 31 December (Paul Sykes, Tom Haggerty), one in southeastern Carteret County on 30 January (Haggerty, Ken Knapp), and one at Santee refuge on 28 February (Cheryl and Eddie Phillips et al.).

PRAIRIE WARBLER: Very rare in winter at Morehead City was one seen by John Fussell on 6 January.

PALM WARBLER: Twelve birds were detected by Bill Wagner and party on 30 January at Jordan Reservoir.

OVENBIRD: Tom Haggerty observed one near Frisco on the Cape Hatteras CBC on 31 December, the second consecutive winter this species has been reported from Buxton Woods.

NORTHERN WATERTHRUSH: Perhaps the second winter record for North Carolina was an individual noted by Bruce Lord at Morgan Creek near Chapel Hill on 17 January. The bird had dark olive-brown upperparts with no streaking; heavy streaks on the sides and breast, with light streaks extending into the throat; creamy eye stripe and underparts; and a habit of bobbing the tail as it fed along the edge of the creek.

NORTHERN ORIOLE: A female or immature “Baltimore” was rare for the Bodie-Pea Island CBC on 30 December, seen by Grayson Pearce at South Pond.

WESTERN TANAGER: One was noted by Tom Haggerty on the Cape Hatteras CBC on 31 December; another was seen at a Fayetteville feeder from 12 January to early February by Ruth Chesnutt, Henry Rankin Jr., and Philip Crutchfield; and a third was seen by Jimmy Beatty, Lex Glover, and George McCoy at Brookgreen Gardens in Georgetown County, S.C., on 30 and 31 January. An immature male seen in a Live Oak at Manns Harbor, Dare County, N.C., on 10 February by Eloise F. Potter was found in the same tree two days later by Virginia Valpey.

SUMMER TANAGER: Apparently the first winter record for upstate South Carolina was a female or immature seen and heard calling at the feeder of Merrill and Charlotte Palmer at Clemson. The bird was present from 9 to 24 January and was also observed by Paul Hamel and Harry LeGrand.

PAINTED BUNTING: Tom Reeves noted a female or immature bird on the McClellanville, S.C., CBC on 20 December.

WINTER FINCH FLIGHT: For the second consecutive winter, a moderate to fairly heavy flight of Evening Grosbeaks and especially Pine Siskins invaded the Carolinas, whereas Purple Finches were only fairly common in most localities.

HOUSE FINCH: Locally noteworthy were peak winter counts of 15 at Whispering Pines, Moore County, N.C. (Carol Turner), and 30 at Morehead City (John Fussell).

COMMON REDPOLL: Individuals were seen at feeders in Durham on 25 and 26 January (Owen and Pat McConnell et al.) and in Raleigh on 26 and 27 January (Fran Irvin). Another was seen in a weedy field in Jordan Reservoir on the Chapel Hill CBC on 27 December by Don Tarbet.

RED CROSSBILL: Winter reports were three on the Raleigh CBC on 19 December (fide Robert Hader), one photographed in late December at Roanoke Rapids (fide Merrill Lynch), and one seen and heard at Six Mile, S.C., on 23 February (Douglas McNair).

GRASSHOPPER SPARROW: One was near the edge of the winter range at Morehead City, as seen by John Fussell on 16 and 22 December.

VESPER SPARROW: One noted by Philip Crutchfield was uncommon near Fayetteville on 19 January.

BACHMAN'S SPARROW: This secretive species apparently winters north to Fort Bragg, N.C., as Jay Carter and Tom Howard saw two in the western section on 2 January and Philip Crutchfield saw two more on 11 January in the northeastern portion of the military base.

TREE SPARROW: Dave Lee observed one at his feeder north of Raleigh on 15 and 16 January.

LINCOLN'S SPARROW: One was noted by Perry Nugent in his yard at Charleston from 17 February to 2 March. The winter distribution of this species in the Carolinas is a complete mystery.

LAPLAND LONGSPUR: Small numbers were again found near Townville during the winter, with a peak count of nine on 6 December (Harry LeGrand, Sidney Gauthreaux). Douglas McNair saw two on 20 December at the Laurinburg, N.C., airfield.

SNOW BUNTING: This irruptive species was quite rare this winter, with the only report being of two seen by Paul Opler and Jay Shuler at Cape Island, S.C., on 20 December.

CORRIGENDUM: The American Avocet reported in Chat (45:106) was seen at Beaufort, N.C., and not at North River.

Carolina Bird Club
INC.

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OUR COVER—John O. Fussell III photographed a Masked Duck discovered by Ann and Derb Carter at Lake Ellis in Craven County, N.C. This is the first published record of the species for the Carolinas (see page 112). Note the two dark facial stripes and the bird's big-headed appearance. The Bewick's Wren drawing on page 107 is the work of Kelly Miller of Raleigh, N.C. Ted Hinson of Rock Hill, S.C., contributed the cartoon on page 111.

BREEDING BIRDS OF HALL SWAMP POCOSIN, MARTIN COUNTY, N.C.

J. MERRILL LYNCH

Abstract. Pocosins are shrub- and tree-dominated wetlands formed in the coastal plain of North Carolina and other Southeastern States. The vertebrate fauna of pocosin habitats is poorly known. This paper presents the results of several breeding-bird censuses conducted in both altered and unaltered pocosin habitats in Martin County, N.C. Additional notes on vegetation composition, bird-habitat relationships, and other faunal components of the pocosins are also given.

Within the North Carolina coastal plain are numerous poorly drained upland swamp areas, better known as pocosins. These pocosin habitats originally occupied about 2,263,000 acres (Wilson 1962) but since the 1950s substantial amounts have been drained and cleared for conversion to agricultural and silvicultural production. The largest remaining pocosins occur in the Great Dismal Swamp, the Dare-Tyrrell-Hyde County (Pamlimarle) peninsula, Holly Shelter Swamp, Angola Bay, Croatan National Forest, and the Green Swamp. The coastal-plain pocosins contain some of the largest roadless wilderness areas remaining in the state and support a diverse assemblage of plants and animals, some of which may reach their greatest abundance there. A diversity of wetland shrub- and tree-dominated habitats occur in pocosins, and for this reason they serve as valuable breeding and foraging sites for a number of bird species, some of which are considered uncommon or local breeders in the state. Faunal composition of the vast coastal-plain pocosins is poorly understood, particularly breeding birds. It is hoped that this paper will stimulate further research in these areas.

The term *pocosin* has been used over the years to describe many different types of wetland habitats. It evolved from an Algonquin Indian word that meant "where water backed up, as in spring freshets, or in rainy season, which by reason of such happening become necessarily more or less boggy" (Tooker 1899). Early settlers used the term to describe, in a broad sense, any number of swamp types dominated by both trees and shrubs.

Probably the best definition of pocosins, and the one used in this paper, was proposed by Wells (1928). He decribes them as being primarily restricted to the coastal plain, and occurring in broad shallow stream basins, drainage basin heads, and on broad flat uplands. These are areas with long hydroperiods, temporary surface water, periodic fire, and soils of sandy humus, muck, or peat.

Kologiski (1977) in his study of the Green Swamp, a pocosin in Brunswick County, N.C., described eight major vegetation types associated with and often restricted to pocosin areas. They are sedge marsh, Pond Pine-evergreen shrub bog, Pond Pine-deciduous hardwood pocosin, pine savanna, pine flatwoods, Atlantic White Cedar forest, evergreen bay forest, and deciduous bay forest. Each of these types is a complex continuum of species populations determined by soil type, hydroperiod, fire frequency, or other disturbances.

STUDY AREA

Hall Swamp pocosin is situated in southeastern Martin County and northwestern Beaufort County. Roughly rectangular, it extends from just south of the towns of Plymouth and Jamesville southward into Beaufort County, an area of approximately 78 square miles (i.e. 50,000 acres). The pocosin is bordered on the north by uplands draining into the Roanoke River, on the south by Pamlico River drainages, on the west by well-drained uplands, and on the east by the Pinetown Scarp, a distinct narrow sandridge believed to represent a Pleistocene ocean shoreline (Mixon and Pilkey 1976).

Topography of the Hall Swamp pocosin is essentially flat; 90% of the area is between 46 and 51 feet above mean sea level. The pocosin lies on the Wicomico Terrace, a flat plain that is believed to have been formed by marine and estuarine forces during a high sealevel stand during the middle to early Pleistocene Period (Daniels et al. 1978).

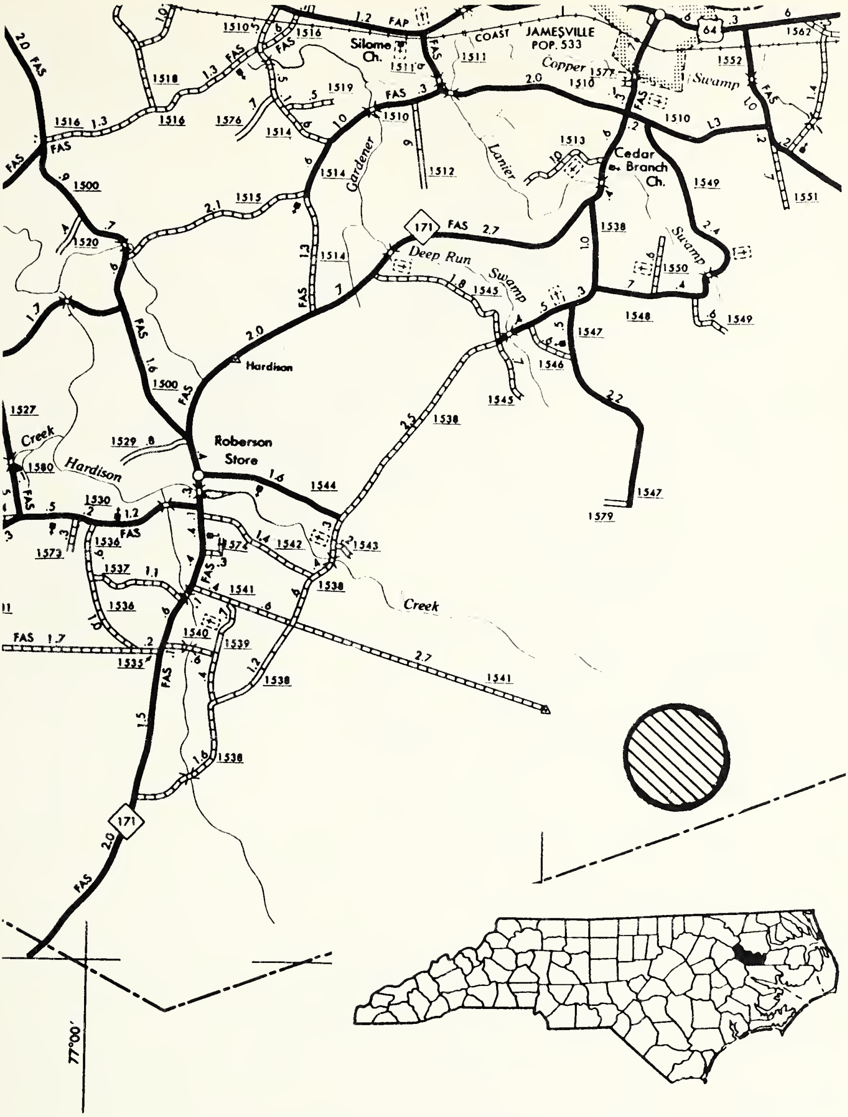
An estimated 90% of the Hall Swamp pocosin has been ditched, drained, and cleared of the native vegetation for conversion to intensively managed pine plantations, a practice that is rapidly altering pocosin and other wetland habitats throughout the North Carolina coastal plain. This has been accomplished by a grid system of roads and numerous ditches and canals that have lowered the water table sufficiently to permit establishment of the pine plantations and to provide easy access for vehicles during timber harvest operations. Hall Swamp can be characterized today as an intensively altered wetland area containing a mosaic of various age class Loblolly Pine plantations with small, scattered pocosin and swamp forest remnants.

The study area was chosen because it represents one of the last remaining blocks of natural pocosin vegetation within Hall Swamp. The term *block* is particularly appropriate because the study area is bounded on all four sides by pine plantations 1 to 10 years old.

The study area (Fig. 1) is at the northern end of Hall Swamp in extreme southeastern Martin County about 8.4 air miles SSE of Jamesville. The area is accessible by road by taking NC 171 south of Jamesville until reaching SR 1541. Continue east on SR 1541 for 3.7 miles until the end of state maintenance. From this point a private timber road (Diamond City Road, which is open to public access) continues SE for 1.2 miles to the southern border of the study area (Fig. 2).

The study area encompasses approximately 775 acres along the broad, flat streamhead of Hardison Mill Creek, one of several small streams that drain the western margin of Hall Swamp. The site is bisected by a number of drainage ditches that feed into the main channel ditch, which in turn feeds into Hardison Mill Creek. The larger road ditches and the main channel ditch are approximately 8 to 10 feet deep and about 12 feet wide. The smaller ditches are about 4 feet deep and 5 feet wide. Spoil banks occur along all ditches. Judging from the early successional stage of the spoil-bank vegetation, the study area was probably ditched less than 10 years ago. It is assumed that eventually the site will be cleared and converted to a pine plantation.

The plant community at the study area is composed of a distinctly three-layered stratification: canopy, subcanopy, and shrub. Loblolly Pine (*Pinus taeda*) is the dominant canopy tree over a closed subcanopy layer of Red Maple (*Acer rubrum*), Red Bay (*Persea borbonia*), Sweet Bay (*Magnolia virginiana*), and smaller Loblolly Pines. The shrub layer is composed of a


JAMESVILLE
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COAST
Silome Ch.
Copper
Swamp
Lanier
Gardener
Cedar Branch Ch.
Deep Run
Swamp
Swamp
Hardison
Roberson Store
Creek
Hardison
Creek
64
171
171
FAS
FAP
77°00'

Fig. 1. Study area, Hall Swamp, Martin County, N.C.

dense growth of Sweet Pepperbush (*Clethra alnifolia*), which forms a thicket over much of the area. Ground cover is sparse and consists of occasional patches of Cinnamon Fern (*Osmunda cinnamomea*) and Netted Chain-Fern (*Woodwardia areolata*). Canopy height is an estimated 80 to 95 feet with the

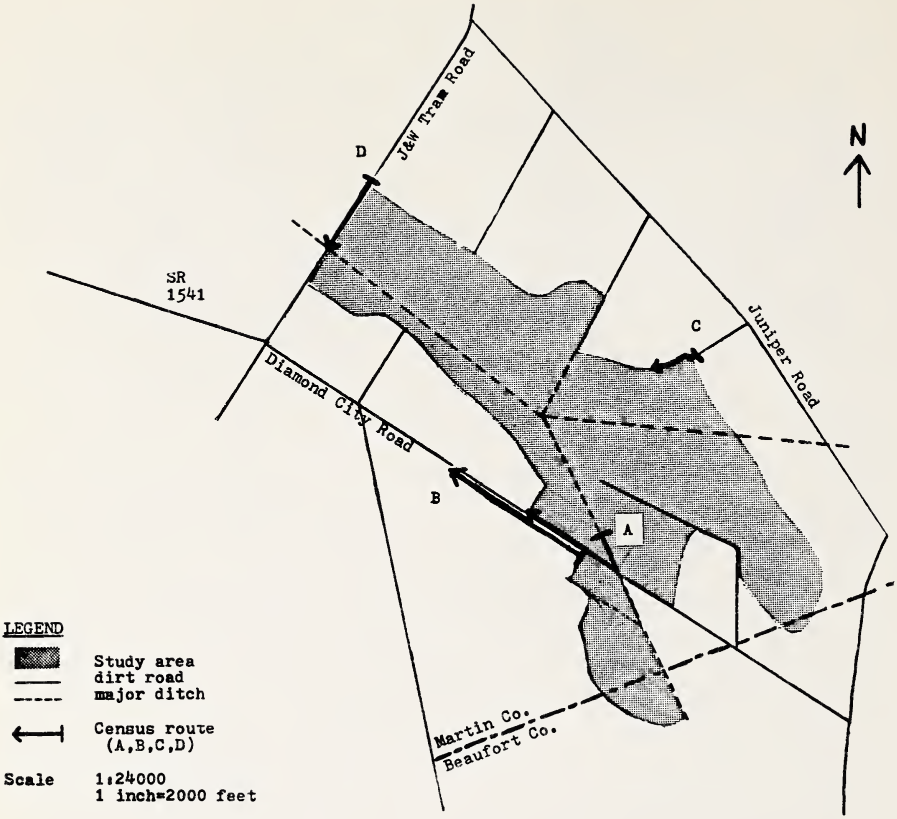

J&W Tram Road
D
N
SR
1541
C
Juniper Road
Diamond City Road
B
A
Martin Co.
Beaufort Co.
LEGEND
Study area
dirt road
major ditch
Census route
(A,B,C,D)
Scale
1:24000
1 inch=2000 feet

Fig. 2. Martin County, N.C., pocosin study area showing Census Routes A, B, C, and D.

trees averaging about 1.7 to 2.1 feet DBH (diameter breast high). Also present in the canopy are scattered old-growth Bald Cypress (*Taxodium distichum*) up to 90 feet tall and 2.5 feet DBH. Scattered Sweetgum (*Liquidambar styraciflua*), Atlantic White Cedar (*Chamaecyparis thyoides*), and Swamp Black Gum (*Nyssa sylvatica* var. *biflora*) are also present in the subcanopy layer. Other common shrubs include Hercules Club (*Aralia spinosa*), Red Chokeberry (*Sorbus arbutifolia*), and several blueberries (*Vaccinium* sp.). Vines are common, particularly along the road and ditch edges, and include Yellow Jessamine (*Gelsemium sempervirens*) and Greenbriar (*Smilax laurifolia*). Scientific plant names follow Radford et al. (1968).

In summary the forest is characterized by an open canopy of tall, scattered Loblolly Pines over a dense, closed subcanopy of Red Maple and bay trees over a dense, low shrub layer of Sweet Pepperbush (Fig. 3). The scattered Bald Cypresses and Swamp Black Gums are probable indicators of a wetter system in the past before ditching and draining activities lowered the water table. Presently, Red Maple is the only aggressively reproducing tree species,

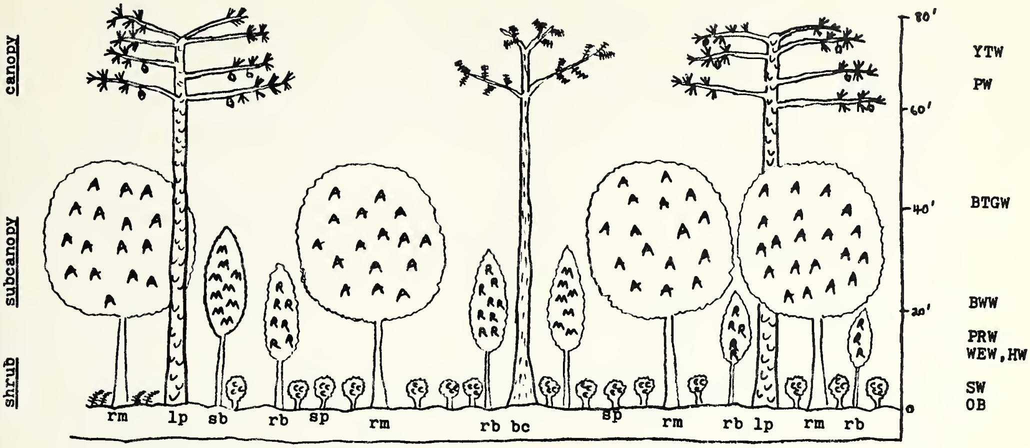


Fig. 3. A diagrammatic representation of the Loblolly Pine-bay forest pocosin habitat type illustrates the vegetation structure and the wood warbler foraging niches. Characteristic plant species are denoted by lower case abbreviations, and wood warbler species are denoted by upper case abbreviations.

Wood warblers:	
Yellow-throated Warbler	YTW
Pine Warbler	PW
Black-thr. Green Warbler	BTGW
Black-and-white Warbler	BWW
Prothonotary Warbler	PRW
Worm-eating Warbler	WEW
Hooded Warbler	HW
Swainson's Warbler	SW
Ovenbird	OB

Characteristic plants:	
Red Maple	rm
Loblolly Pine	lp
Sweet Bay	sb
Red Bay	rb
Sweet Pepperbush	sp
Bald Cypress	bc

as evidenced by abundant transgressive seedlings and saplings present throughout the study area.

The vegetation of the study area is similar structurally to the deciduous bay forest pocosin type as described by Kologiski (1977) in his study of the Green Swamp pocosin vegetation. His definition of bay forest is characterized by shallow to deep organic soils, intermediate to long hydroperiods, absence of major fires, and a canopy dominated by combinations of the following species: Red Maple, Atlantic White Cedar, Swamp Black Gum, Sweet Bay, Red Bay, Loblolly Bay (*Gordonia lasianthus*), Titi (*Cyrilla racemiflora*), Pond Pine (*Pinus serotina*), and Pond Cypress (*Taxodium ascendens*).

However, in species composition the two sites differ. The last four species are absent from the Hall Swamp study area and are replaced by species that occupy similar structural niches. Loblolly Pine and Bald Cypress replace Pond Pine and Pond Cypress in the canopy while in the shrub layer Sweet Pepperbrush replaces Titi. These differences in composition may be related to soils, hydroperiod, and geography. Pond Pine, Pond Cypress, and Loblolly Bay are common and well adapted to moderately deep organic soils with medium to long hydroperiods (Kologiski 1977), whereas Loblolly Pine and

Bald Cypress more commonly occur over mineral soils with or without shallow organic surface horizons. The study area is underlain by mineral soils with shallow (less than 1.5 feet) organic surface layers. In addition, Martin County is near the northern edge of the natural range for the three absent species. The fourth species missing from the study area, Titi, usually occurs on wetter sites than Sweet Pepperbush. This may explain its absence at Hall Swamp.

Soils in the study area have tentatively been mapped as poorly drained fine sandy loams of the Bladen, Lynchburg, and Rains soil series. These soils have a seasonal high water table within 1 to 1.5 feet of the surface and are strongly to very strongly acidic. Generally throughout the study area a shallow layer of organic matter overlies the mineral soil horizons (Soil Conservation Service 1978).

STUDY TECHNIQUES

On 18 April and 29 May 1981 I conducted several bird censuses along selected routes on the southern and northern borders of the study area. Censuses were conducted for one hour each between 1200 and 1430. Territorial pairs (represented by singing males) seen or heard along each route were counted. Censuses were conducted by walking slowly along the road or ditch and recording species and numbers seen or heard along the way. In an effort to standardize the counts, each route was (1) run in the same direction, (2) conducted during the same time period, and (3) performed under similar weather conditions on each day. See Figure 2 for locations of the census routes.

Four census routes (A, B, C, D) were conducted during this study. Two routes (A and B) were conducted consecutively on each of the two dates, whereas Route C was censused only on 18 April and Route D only on 29 May. Routes A, C, and D sampled representative examples of the natural pocosin vegetation as described in the Study Area section. Route B sampled a 5-year-old Loblolly Pine plantation managed by a private timber company and situated immediately adjacent to the Route A portion of the study area. This plantation is representative of the many managed even-age pine stands in Hall Swamp. Rows of planted pines about 10 to 20 feet tall form a dense cover. Scattered saplings of Red Maple and Sweetgum are in the stand along with occasional dense patches of Blackberry (*Rubus* sp.). Route B was chosen to sample breeding bird composition and density at an intensively altered site that once contained habitat similar to that of the study area. Tables 1, 2, and 3 summarize census results.

SPECIES ACCOUNTS

Whip-poor-will: Three singing birds were recorded during a nocturnal reconnaissance of the study area on 29 May. This species' distribution in the coastal plain of the Carolinas is poorly understood. Hamel et al. (1979) reported Whip-poor-wills during the breeding season from two locations in the upper South Carolina coastal plain; Fussell and Guida (1975) reported similar observations from the Croatan National Forest, Carteret County, N.C. During June and July from 1975 through 1980, I noted singing birds at several locations in the northern coastal plain of North Carolina: California, Hertford County; Gates, Gates County; Askewville, Bertie County; and Hamilton, Martin County. These records suggest that this species may be fairly common

TABLE 1. Composition and abundance of breeding birds at the Hall Swamp pocosin study area, Martin County, N.C. *Census Route A:* Loblolly Pine-bay forest plant community. Both censuses were conducted between 1200 and 1430 hours. Numbers are territorial males seen or heard along a 3000-foot transect on the Diamond City Road.

Species	*18 April 1981*	*29 May 1981*
Worm-eating Warbler	4	7
Ovenbird	2	5
Acadian Flycatcher	-	3
Red-eyed Vireo	6	3
Yellow-billed Cuckoo	-	2
Eastern Wood-Pewee	-	2
Great Crested Flycatcher	2	2
Carolina Wren	2	2
Blue-gray Gnatcatcher	2	2
White-eyed Vireo	1	2
Black-and-white Warbler	1	2
Prothonotary Warbler	4	2
Yellow-throated Warbler	3	2
Pine Warbler	4	2
Hooded Warbler	3	2
Northern Cardinal	5	2
Red-shouldered Hawk	1	1
Great Horned Owl	-	1
Northern Flicker	1	1
Pileated Woodpecker	1	1
Red-headed Woodpecker	1	1
Hairy Woodpecker	-	1
Northern Bobwhite	-	1
Ruby-thr. Hummingbird	-	1
Carolina Chickadee	-	1
Tufted Titmouse	3	1
Swainson's Warbler	-	1
Black-thr. Green Warbler	5	1
Wood Thrush	-	1
Summer Tanager	1	1
Brown-headed Cowbird	3	1
Rufous-sided Towhee	1	1
Red-bellied Woodpecker	2	-
Blue Jay	1	-
TOTALS: Individuals	59	58
Species	24	32

but local in the northern coastal plain and uncommon to rare in the Carolina coastal plain south of the Neuse River.

Common Nighthawk: A total of 12 individuals were seen 29 May at four sites adjacent to the study area. Birds were observed feeding over recently

TABLE 2. Composition and abundance of breeding birds at the Hall Swamp pocosin study area, Martin County, N.C. *Census Route B.* 5-year-old Loblolly Pine plantation. Both censuses were conducted between 1200 and 1430 hours. Numbers are territorial males seen or heard along a 3000-foot transect on the Diamond City Road. The two species recorded in the pine plantation but not in the Loblolly Pine-bay forest plant community are marked with an asterisk (*).

Species	*18 April 1981*	*29 May 1981*
Prairie Warbler*	6	8
Northern Bobwhite	-	4
Yellow-breasted Chat*	-	4
Indigo Bunting	-	4
Brown-headed Cowbird	2	4
White-eyed Vireo	3	3
Common Yellowthroat	3	3
Mourning Dove	2	2
Yellow-billed Cuckoo	-	2
Gray Catbird	1	2
Carolina Wren	2	1
Hooded Warbler	2	1
Northern Cardinal	2	1
Rufous-sided Towhee	-	1
TOTALS: Individuals	23	40
Species	9	14

cleared land where large piles of brush and debris had been bulldozed into rows. Behavior of the birds suggested that they were roosting and probably nesting in these cleared areas.

Black-and-white Warbler: A total of three singing males, assumed to be territorial, were recorded on two census routes. Recent breeding-season records in the North Carolina coastal plain are few and scattered:

Carteret County	June-July 1970-1971	Fussell, Audubon Field Notes 24:672 and 25:846
Tyrrell County	June 1971	LeGrand, AFN 25:846
Dare County	June 1971	Mahler, AFN 25:846
Bertie County	July 1973	Lynch, American Birds 27:859
Gates County	June 1976-1977	Lynch, unpub. notes
Dare County	May 1980	LeGrand, AB 34:887

The Carteret, Tyrrell, and Gates County records are all from deciduous bay forest pocosin habitat. The birds seen at the study area were in the Red Maple-bay tree subcanopy zone where the Black-throated Green Warbler also forages (see Fig. 3).

Worm-eating Warbler: A total of *eight* singing males were recorded on two routes. To my knowledge this is the highest number ever recorded at one locality during the breeding season in the North Carolina coastal plain. Along Route A (Table 1) this warbler was the most common species. Individuals were restricted to the shrub layer and lower levels of the subcanopy. Several males were observed singing from perches in small Red Bay trees about 20 feet above

TABLE 3. Composition and abundance of breeding birds at the Hall Swamp pocosin study area, Martin County, N.C. Both censuses were conducted in the Loblolly Pine-bay forest plant community between 1200 and 1430 hours. Route C includes territorial males seen or heard along a 1000-foot transect; Route D includes territorial males seen or heard along a 2000-foot transect on the J & W Tram Road.

Species	*Route C* *18 April 1981*	*Route D* *29 May 1981*
Mourning Dove	-	3
Carolina Wren	1	2
Northern Cardinal	1	2
Blue-gray Gnatcatcher	1	2
Prothonotary Warbler	1	2
White-eyed Vireo	2	2
Tufted Titmouse	1	2
Northern Bobwhite	-	2
Yellow-billed Cuckoo	-	2
Wood Thrush	-	2
Common Yellowthroat	-	2
Indigo Bunting	-	2
Brown-headed Cowbird	-	2
Northern Flicker	-	1
Pileated Woodpecker	-	1
Downy Woodpecker	-	1
Great Crested Flycatcher	1	1
Eastern Wood-Pewee	-	1
Acadian Flycatcher	-	1
Gray Catbird	-	1
Red-eyed Vireo	3	1
Pine Warbler	1	1
Yellow-throated Warbler	-	1
Hooded Warbler	1	1
Ovenbird	1	1
Summer Tanager	-	1
Red-tailed Hawk	1	-
Red-headed Woodpecker	1	-
Red-bellied Woodpecker	1	-
Black-and-white Warbler	1	-
Worm-eating Warbler	1	-
Rufous-sided Towhee	1	-
TOTALS: Individuals	20	40
Species	17	26

the ground. Highest densities seemed to be correlated with the densest understory. Interestingly, the Route A census recorded 4 singing males on 18 April and 7 males on 29 May, apparently indicating an influx of additional birds in late April or early May. Singing intensity was vigorous even during the heat of midday on both count days. Worm-eating Warblers are considered

TABLE 4. Master species list of the breeding birds of the Hall Swamp pocosin study area, Martin County, N.C.

Turkey Vulture
Black Vulture
Red-tailed Hawk
Red-shouldered Hawk
Northern Bobwhite
Mourning Dove
Yellow-billed Cuckoo
Great Horned Owl
Whip-poor-will
Common Nighthawk
Chimney Swift
Ruby-throated Hummingbird
Northern Flicker
Pileated Woodpecker
Red-bellied Woodpecker
Red-headed Woodpecker
Hairy Woodpecker
Downy Woodpecker
Great Crested Flycatcher
Acadian Flycatcher
Eastern Wood-Pewee
Northern Rough-winged Swallow
Blue Jay
American Crow
Fish Crow
Carolina Chickadee
Tufted Titmouse
Carolina Wren
Gray Catbird
Wood Thrush
Blue-gray Gnatcatcher
White-eyed Vireo
Red-eyed Vireo
Black-and-white Warbler
Prothonotary Warbler
Swainson's Warbler
Worm-eating Warbler
Black-throated Green Warbler
Yellow-throated Warbler
Pine Warbler
Prairie Warbler
Ovenbird
Common Yellowthroat
Yellow-breasted Chat
Hooded Warbler
Brown-headed Cowbird
Summer Tanager
Northern Cardinal
Indigo Bunting
American Goldfinch
Rufous-sided Towhee

rare and local during the breeding season on the North Carolina coastal plain (Parnell 1977). Recent records are:

Carteret County	June-July 1970-1971	Fussell, AFN 24:672 Fussell, AFN 25:846
Dare County	June 1971	LeGrand, AFN 25:846
Tyrrell County	June 1971	LeGrand, AFN 25:846
Gates County	June 1972-1980	Lynch, AB 34:887
Dare County	June 1973	Fussell, AB 27:859
Dare County	June 1975	Lynch, AB 29:960
Carteret County	June 1975	Fussell, AB 29:960
Dare County	June 1977	Lynch, AB 31:1127
Camden County	April-June 1980	Terwilliger, AB 35:68-69
Washington County	May 1981	Lynch, unpub. notes

Terwilliger (1980) conducted several breeding-bird censuses in Atlantic White Cedar stands, a common pocosin vegetation type, within the Great Dismal Swamp, Camden County, N.C., and the City of Suffolk, Virginia. Worm-eating Warblers were the fifth and sixth most common species in two of these study plots. As far as I can determine all of the 1970 to 1980 records are from similar habitat, i.e. wetland pocosin habitats dominated by dense shrub and subcanopy layers. It seems likely that the Worm-eating Warbler may be more widespread in the coastal plain than previously thought. It should be looked for in bay forests and Atlantic White Cedar stands.

Black-throated Green Warbler: A total of five singing males were recorded on Route A on 18 April. However, on 29 May only one male was recorded. This may be explained by the fact that this species is an early nester and singing activity decreases markedly by early June. Meanley (1979) reports that populations in the Great Dismal Swamp nest "mostly in April" and also notes that this species is one of the most common breeding warblers in the swamp with daily counts of over 100 individuals in the Virginia section.

Within the study area this species had a localized distribution with all pairs clustered in one area along the southern border. Three singing males could be heard simultaneously from one location. Singing activity was vigorous even during midday, and all birds seen were foraging in the Red Maple-bay tree subcanopy zone, 20 to 60 feet above the ground (see Fig. 3).

OTHER FAUNA

During the study I also noted the occurrence of various mammals, reptiles, and amphibians. Although documentation by specimens was not possible, the following species list may help fill some of the gaps in our knowledge of faunal composition in pocosin habitats.

Mammals:
- Opossum (*Didelphis marsupialis*): tracks only
- Eastern Gray Squirrel (*Sciurus carolinensis*): one seen
- Marsh Rabbit (*Sylvilagus palustris*): one seen
- White-tailed Deer (*Odocoileus virginianus*): 6 seen, many tracks; apparently very common in area

Reptiles and Amphibians:
- Oak Toad (*Bufo quercicus*): hundreds calling after rain, 29 May
- Southern Toad (*Bufo terrestris*): 10+ calling, 29 May
- Southern Cricket Frog (*Acris gryllus*): 10+ calling, 29 May
- Gray Treefrog (*Hyla chrysoscelis*): 20+ calling, 29 May
- Squirrel Treefrog (*Hyla squirella*): 50+ calling, 29 May
- Little Grass Frog (*Limnaoedus ocularis*): hundreds calling, 29 May
- Bullfrog (*Rana catesbeiana*): 2 calling, 29 May
- Green Frog (*Rana clamitans*): 15 calling, 29 May
- Southern Leopard Frog (*Rana sphenocephala*): 10 calling, 29 May
- Eastern Box Turtle (*Terrapene carolina*): 2 seen
- Southeastern Five-lined Skink (*Eumeces inexpectatus*): one seen

DISCUSSION

A total of 51 avian species, all of which are probable breeders, were recorded within or immediately adjacent to the 775-acre study area. Of this total, 42 species were recorded on the four census routes. A breakdown of the latter total by habitat type indicates that 28 species (67%) are restricted to the mature Loblolly Pine-bay forest plant community, only 2 (5%) are restricted to the early successional Loblolly Pine plantation, and 12 (28%) are common to both habitats. An additional 9 species were seen in the study area but not recorded on the census routes: Turkey Vulture, Black Vulture, Whip-poor-will, Common Nighthawk, Chimney Swift, Northern Rough-winged Swallow, American Crow, Fish Crow, and American Goldfinch.

The mature Loblolly Pine-bay forest plant community supports a surprisingly diverse assemblage of breeding birds, including 10 species of wood warblers and 6 species of woodpeckers. Contributing to this diversity is the three-layered stratification of the forest, providing a number of foraging niches for the warblers, and the presence of numerous old-growth canopy trees providing abundant dead stubs and branches suitable for use as nesting and feeding habitat by the woodpeckers (see Fig. 3). The dense understory also provides numerous nesting sites for the small passerines, as well as foraging cover.

Several species considered uncommon or local in the coastal plain were recorded. These are Whip-poor-will, Black-and-white Warbler, Worm-eating Warbler, and Black-throated Green Warbler. A number of species considered to be fairly common to common in coastal-plain swamp forests and other wetland habitats were *not* recorded from the study area. These include: Wood Duck, Green-backed Heron, Barred Owl, Chuck-will's-widow, White-breasted Nuthatch, Yellow-throated Vireo, Northern Parula, and Orchard Oriole.

Distribution of the Northern Parula in the coastal plain seems to be correlated with that of Spanish Moss (*Tillandsia usneoides*), an epiphytic plant that provides well-concealed nesting sites. No such obvious explanation can be offered for the apparent absence of the other potential breeding birds that were not found in Hall Swamp.

ACKNOWLEDGMENTS

Thanks go to Julie Moore of the North Carolina Natural Heritage Program, who helped with the field work, and to Lance Peacock, of the North Carolina Nature Conservancy, who reviewed this manuscript and offered many helpful comments. A portion of the field work was undertaken while under contract with the North Carolina Natural Heritage Program.

LITERATURE CITED

Daniels, R.B., E.E. Gamble, and W.H. Wheeler. 1978. Age of Soil Landscapes in the Coastal Plain of North Carolina. Soil Science Society of America Journal 42:98-105.

Fussell, J., and V. Guida. 1975. Whip-poor-will: Briefs for the Files. Chat 39:97.

Hamel, P.B., S.M. Winton, and B.E. Cassie. 1979. May and June observations of the Whip-poor-will in the South Carolina coastal plain. Chat 43:65-66.

Kologiski, R.L. 1977. The Phytosociology of the Green Swamp, North Carolina. N. C. Agricultural Experiment Station Tech. Bul. No. 250.

Meanley, B. 1979. An Analysis of the Birdlife of the Dismal Swamp in The Great Dismal Swamp, Paul W. Kirk, editor. University Press of Virginia, Charlottesville.

Mixon, R.B., and O.H. Pilkey. 1976. Reconnaissance Geology of the Submerged and Emerged Coastal Plain Province, Cape Lookout Area, North Carolina. U.S. Geological Survey Professional Paper No. 859. U.S. Govt. Printing Office, Washington, D.C.

Parnell, J.F. 1977. Birds. Pages 330-384 in Endangered and Threatened Plants and Animals of North Carolina, J.E. Cooper, S.S. Robinson, and J.B. Funderburg, editors. N.C. State Museum of Natural History, Raleigh.

Radford, A.E., H.E. Ahles, and C.R. Bell. 1968. Manual of the Vascular Flora of the Carolinas. University of North Carolina Press, Chapel Hill.

Soil Conservation Service. 1978. Martin County, North Carolina Special Soil Survey Report. SCS, U.S. Dept. Agric. Washington, D.C.

Terwilliger, K. 1981. Forty-fourth Breeding Bird Census. Amer. Birds 35:68-69.

Tooker, W.W. 1899. The adopted Algonquian term "poquosin." Amer. Anthropol. January:162-170.

Wells, B.W. 1928. Plant Communities of the Coastal Plain of North Carolina and their successional relations. Ecology 9:230-242.

Wilson, K.A. 1962. North Carolina Wetlands: Their Distribution and Management. Federal Aid in Wildlife Restoration Project No. W-6-R. N.C. Wildlife Resources Commission, Raleigh.

North Carolina Natural Heritage Program, Department of Natural Resources and Community Development, P.O. Box 27687, Raleigh, N.C. 27611, 10 January 1982.

Pocosin: A Clarification

The term "pocosin" is used to describe various freshwater wetland habitats in the coastal plain of the southeastern United States. Botanists, zoologists, hydrologists, geologists, and other researchers have defined the term to include slightly different types of wetland vegetation. Some professionals consider pocosins to be restricted to areas of deep peat or sandy peat characterized by dense Pond Pine and evergreen-shrub vegetation. Their definition of pocosin is narrower than the one used in the above paper on Hall Swamp pocosin. They consider the vegetation type described in this paper to be an upland swamp forest and not a "true" pocosin. Nonetheless, I prefer to use the broad definition of pocosin given by Wells (1928), and included various vegetation types that are associated with poorly drained upland or nonalluvial wetlands. The plant community in Hall Swamp pocosin meets the criteria established by Wells, and the study site is vegetatively quite distinct from typical bottomland or alluvial swamp forest. I believe it is best characterized as a vegetation sub-unit of the pocosin wetland complex.

Persons wishing to learn more about pocosin ecology are referred to *Pocosin Wetlands/Proceedings of Pocosins: A Conference on Alternative Uses of the Coastal Plain Freshwater Wetlands of North Carolina* (C. J. Richardson, editor, 1981, Hutchinson Ross Publishing Co., Stroudsburg, Pa.). —JML

Backyard Birding

... with Gail T. Whitehurst

Bewick's Wrens Nest in Wautauga County, N.C.

Knowing of our love for antiques as well as birds, our son, Dick, gave us a Williamsburg nest bottle. The 2½-inch mouth would not interest any bird but a common wren, so we hung it as a decoration, not caring that it faced north and was not very close to protective shrubbery. It was hung on a blank wall, 2 feet beneath a tray feeder in good view from the kitchen eating counter and the driveway.

Returning from the National Audubon Convention in mid-July, we were pleased to find a Carolina Wren singing from atop the bottle. Having made detailed studies of the Florida subspecies, we found it of only passing interest. When we saw a somewhat smaller wren-type bird entering the bottle, we began to pay close attention. The bird always flew directly to the tiny twig perch and went in so rapidly that we were hard pressed to get details that would satisfy our desire for careful identification. Now and then the Carolina would go into the bottle but did not remain long. It took an unbelievable number of sightings to piece together the parts needed to be sure of which wren we were studying.

The bill was easily wren. The eye line was not as white as the Carolina's. The sides were buffy. The tail was long. There was fine barring on the upper parts, but it took a long time to be sure it was only the folded wings, and not the bird's back. The throat was white. Because we were looking down on the birds, we had no opportunity to see the underparts until I spied one of them having a preening session on a nail in the supporting post of the porch. The underparts were definitely white! This settled our minds in all but the most obvious identification mark—the white tail margins. Sometimes I caught a glimpse of a very thin one, but the tail was always folded. The 13 books in our home that had pictures or descriptions of Bewick's Wrens emphasized that, but the pictures usually showed the tails spread out. We were convinced we had Bewick's Wrens and began to read as much as possible about them, especially as to their rarity in our mountains. I made a notation in my bird notes, "7/14/81 Bewick's Wrens nesting in the Wm. bottle."

So far we were sure of a Carolina Wren that sang from the bottle and sometimes entered it, and a Bewick's that often entered the same nest. We assumed we had a male and female, in that order, and further wondered if the possibility existed of cross breeding. The new Terres *Encyclopedia* often mentions mixing of species, contrary to former works I had read. Knowing of the House Wren's tendency to harm eggs and young, we worried about that, too.

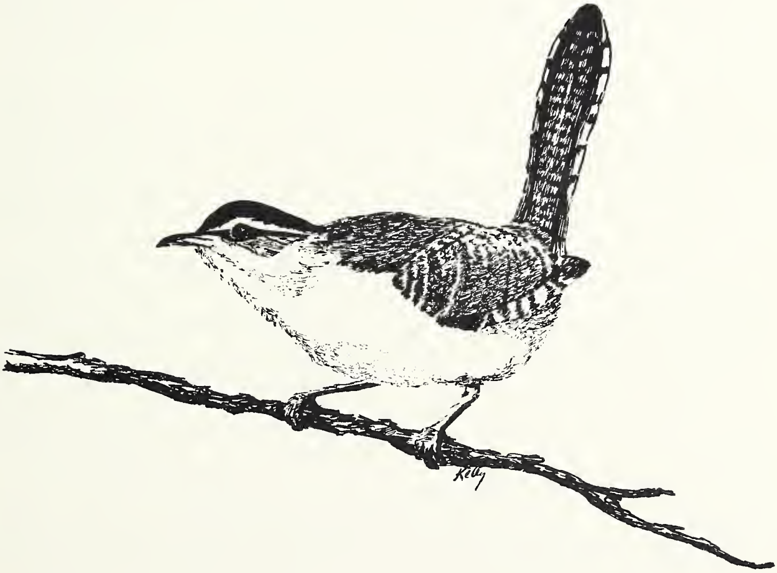
At last we knew the female was remaining inside long enough to be incubating. The male Carolina continued to enter now and then. Later we saw another Bewick's arrive and feed her. Was it courtship feeding or assisting in the feeding of young? On 16 July we saw a fecal sac carried out. Ah! Hatchlings at last! There were increased trips for feeding the babies, but not enough to supply a normal brood. No doubt there were not many babies.

On the nineteenth I saw the female skid upon arrival, sailing inside as if she had just waxed the floor. Up before dawn, I recorded the first feeding of the day as 6:15 a.m.

A slightly fanned tail was seen the twenty-third, and a proper white border was plainly seen.

In mid-morning of the twenty-fourth, we were drawn to the window by the loud and insistent scolds of the Bewick's Wrens. There were two birds, tails well fanned out, and looking exactly like most of our references. They were upset over something on the edge of the driveway or in the weeds and low branches. We finally found a chipmunk and suspected that fledglings were hidden, but at no time saw one. The commotion lasted 20 minutes or longer and we had time to get the tape recorder and get their calls. Comparing them later with the Cornell tapes, we had a good match.

On the twenty-sixth, all activity in the bottle had ceased. Remembering that young birds sometimes return to the nest to roost, I left the bottle undisturbed. When I could see a spider web across the mouth, I knew I could



take the bottle down for examination. Inside was an egg! I rolled it out gently with a spoon. Both its pattern and size were between the Carolina Wren and Bewick's. Allowing for individual differences within the same species might account for this, or does it? When the contents of the bottle were pulled out, they consisted of grasses and nondescript fluff. Neither the coarse twigs found in many wren nests nor a stick barrier across the large opening was found.

We came to the conclusion that a pair of Bewick's Wrens had their second brood of the season in our nest bottle. What part the Carolina Wren played is unclear. At no time did we see friction between these species. The number of eggs is unknown, but the number that hatched and fledged was small. At no time did we see eggs, shell fragments, or babies being removed. Did the Carolina kill some babies? Puncture some eggs? Obviously the odd egg was infertile or improperly incubated. Perhaps it should not be entirely ruled out that it was a hybrid egg, improbable as that may be.

The altitude of our home is 3400 feet and, in line with the habitat mentioned in several references, is brushy and rural, yet near humans. Our scarcity of House Sparrows and European Starlings is also favorable. The fledging date is about a month later than any mentioned in the literature studied. The very fact that Bewick's nested at all is amazing in view of the many statements that they no longer breed in our mountains and are not often even seen. — RUTH A. HAYNES, Route 4, Box 279B, Boone, N.C. 28607.

(Continued from Page 122)

INDIGO BUNTING: Alan Avakian observed a brown-plumaged individual, with bluish color in the wings, at Clemson on the extremely early date of 23 March.

PAINTED BUNTING: A female or immature male was present in John Fussell's yard in Morehead City from 11 March to 10 April; it may have overwintered in a nearby area.

DICKCISSEL: A colony was discovered in Anderson County, S.C., near Townville this spring. Harry LeGrand and Sidney Gauthreaux found three singing males at one site, and another male 0.5 mile away, on 23 May. A number of colonies and/or singing males have been found at various places over the past 8 years in that county, which undoubtedly contains more suitable habitat (grassy or weedy fields with a scattering of tall composites and/or shrubs) than any other in the Carolinas.

HOUSE FINCH: Jay Carter observed a female building a nest in a Longleaf Pine sapling bordering a golf course near Pinehurst, N.C., on 23 April; two males were seen nearby. This is the first nesting record for the Sandhills region. Marie Gerstenberg found an adult feeding young at Durham on 1 May. At localities where the species is scarce, two were at Rockingham, N.C., on 20 March (Douglas McNair), one was at Asheville on 22 March (Jerry Young), and two were at Cape Lookout on 10 April (John Fussell).

PINE SISKIN: Extremely late was a siskin that remained at a Winston-Salem feeder through 8 June, according to Ramona Snavely.

SNOW BUNTING: One of the few sightings for the winter season was three noted by Avery and Susan Burns at Raccoon Key, S.C., on 20 February.

CBC Roundtable

... with Louis C. Fink

Martins vs. Sparrows

The number of articles on Purple Martins seems to be increasing, and that pleases me, inasmuch as I have promoted the martin for years. Still, I sometimes get a chuckle when I read these, for some bear the unmistakable stamp of my own pen. Well, that's one way to become an expert; just promulgate the profundities, and the errors, of the "experts" who've gone on before.

Most of the articles point out that House Sparrows and European Starlings are the natural enemies of the martin. That is true, but apparently not under all conditions. In the 23 years I've kept martins here at Raleigh, there has not been one starling or sparrow nest in the colony, and that's not because I've taken the old blunderbuss to the miscreants.

I've always used gourds, and there's something about a gourd that the starling doesn't seem to like. Perhaps it's because a gourd sways too much in the breeze. Sparrows have no such qualms about being jiggled, and every year that rolls around they attempt to nest in my martin's gourds, but they always give up before any eggs are laid. I don't know why the sparrows quit, but suspect that the noise around a well-inhabited martin colony is a bit disconcerting.

Martins rarely attack sparrows. Rather, they subject them to a much more cruel fate; they talk them to death. I would not like to have to perch all day long in a colony of 24 chattering martins, so to that extent I can sympathize with the sparrows.

There might be something didactic in the above. A strong colony of martins can look after itself. Provide the birds with a modest number of gourds of the right size, space the gourds out, and provide plenty of room for perching. After all, the martins can't drive friend sparrow batty with their patter if they have to perch on utility wires half a block away.—JOSHUA A. LEE, 5104 Newcastle Street, Raleigh, N.C.

Just How Broody are Bluebirds?

I've frequently read references to bluebirds being double, or even triple, brooded. The problem is that I don't know just what multiple-broodedness means. Does it mean that a given pair of birds rears out more than one brood during a given nesting season, makes multiple attempts at nesting, or what? Now I've seen bluebird eggs in the nest from early April through 1 August, but that only proves that the birds will attempt to nest over a lengthy period of time and not that a given pair will attempt to raise as many broods as possible.

There were seven bluebird houses along my trail near Raleigh in 1982, and all were occupied. Nesting was somewhat later than usual, the first eggs appearing on 17 April. One brood was fledged from each house with no further attempts at nesting after a brood had flown. Three pairs fledged broods on the first attempt, and the remaining pairs—I can't be sure that the same pairs were involved—were successful on a second attempt. The progress of two broods—one of three and the other of five—was followed into August. These juveniles and their parents remained in the territory and might have used the nesting box for roosting. These two examples were definitely single-brooded, as was another pair. The remaining four examples, whether representing renesting attempts or new pairs, also reared but one brood. Could it be that bluebirds at our latitude are frequently, perhaps most often, single-brooded in the sense that one success shuts down nesting for the remainder of the season? —JOSHUA A. LEE, 5104 Newcastle Street, Raleigh, N.C.

100th Anniversary

The American Ornithologists' Union, oldest and largest of the ornithological societies in North America, is celebrating the hundredth anniversary of its founding in 1983. Its quarterly journal, *The Auk*, now includes about 1000 pages a year of papers on a wide variety of ornithological topics. The long-awaited sixth edition of the AOU *Check-List of North American Birds* will be published in time for the centennial meeting. If interested in knowing more about the AOU, please write to Membership Chairman, Dr. Gustav A. Swanson, Department of Fishery and Wildlife Biology, Colorado State University, Fort Collins, Colorado 80523.

A Word for the Wilderness

In the 16 August 1982 issue of *Newsweek*, George F. Will mounted a strong defense of an irreplaceable asset in a column titled "A Word for the Wilderness." The concluding paragraphs should be kept in mind by all CBC members as we attempt to introduce our fellow citizens to the joys of bird watching and the responsibilities of conservation:

"This nation began as an 'errand into the wilderness.' The first task was to tame that wilderness, but as Wallace Stegner says, we need to preserve some of it 'because it was the challenge against which our character as a people was formed.'

"Most Americans will never care a fig about wilderness. Perhaps that means it is an elitist concern. But so what? Edith Hamilton, the classicist, once said to Ezra Pound: 'I have heard of a great Confucian who wrote a letter so difficult there was only one other man in all of China who could understand it. That is not very democratic, I'm afraid. That is aristocratic, like you, Mr. Pound.' Pound replied: 'It is democratic insofar as it provides that anyone may have the opportunity to learn enough to read that letter.' Enjoyment of wilderness may not be spontaneous and 'natural.' It may be a learned process, inviting and even requiring reflection. But it is nonetheless valuable for being an aristocratic pleasure, democratically open to all."

Newspaper Stories

Friends send me newspaper clippings all the time. These may be of no scientific importance, but they are fun to read and share. From Sanibel, Florida, comes a report that Magnificent Frigatebirds are seen in flocks of 40 or more. One tourist reported that he had noted their ability to pull out of a steep drive, built a model for the wind tunnel, and developed the F4U military bomber!

Also in Sanibel, the J.N. "Ding" Darling N.W.R. people tried to attract Black Skimmers by discing a secluded area. The soil was too black for the birds, who chose a white sandy area near a causeway that is heavily traveled. Large-scale nesting developed.

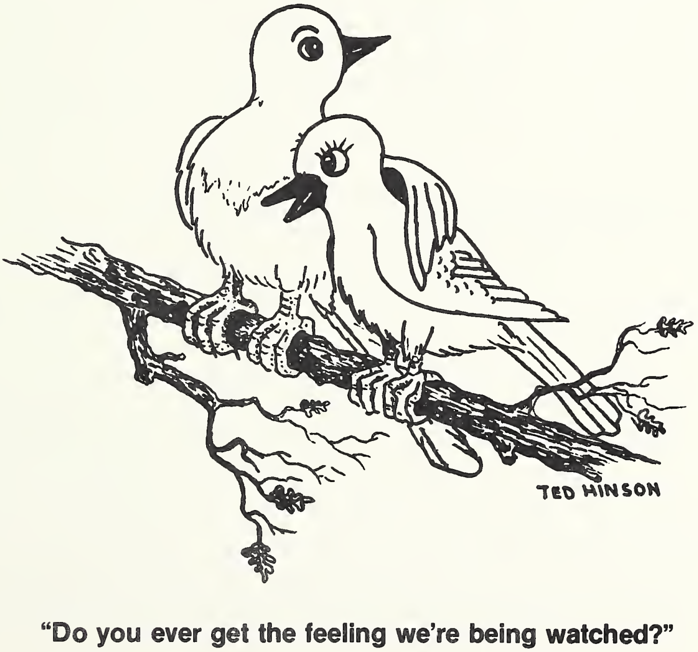
In Thailand, a pigeon was trained to carry heroin, but the police arrested the 18-year-old developer of the idea. The young man bought heroin, strapped it to the bird's leg—and the bird was home before he was.

In Wisconsin, a Whooping Crane was conceived by artificial insemination. The chick has fledged and taken its first flight.

The Air Force Thunderbirds lost a skilled flyer when a Talon jet trainer hit a flock of sea gulls at Burke Lakefront Airport in Cleveland. Gulls and blackbirds are a hazard at many airports.—LCF

Superbird

Scientists report the discovery of fossil remains of a teratorn, *Argentavis magnificens*, said to be the world's largest bird that could actually fly. It was 11 feet long, with a 250-foot wingspan and a weight of 160 pounds. I suppose we should be glad it doesn't come to our feeders.



"Do you ever get the feeling we're being watched?"

General Field Notes

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JULIAN R. HARRISON, Associate Editor
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First North Carolina Record of the Masked Duck

DERB S. CARTER JR.
ANN DARBY CARTER
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On the afternoon of 20 February 1982, we observed a Masked Duck (*Oxyura dominica*) from a canoe on Lake Ellis in Craven County, N.C. The following morning we returned by canoe to the same area with John O. Fussell III and after a short search located the bird. Fussell concurred in our identification and secured several color photographs of the duck. This sighting and supporting photographs (see front cover) constitute the first recorded occurrence of the Masked Duck in the Carolinas.

The bird was first observed as it swam out of a clump of emergent vegetation and into open water. Field marks were not discernible due to the intense glare of the sun off the surface of the water. It had the silhouette of a Ruddy Duck (*O. jamaicensis*) and possibly would have been passed up as such had it not taken flight by leaping straight up out of the water. This triggered our curiosity because Ruddy Ducks characteristically "run" across the surface of the water when taking flight. Twenty minutes later we relocated the duck and identified it as a Masked Duck in female or winter-male plumage.

After relocating the bird, we observed it from as close as 10 m as it swam and dove near emergent vegetation. Two dark facial stripes distinguished this duck from the similar female Ruddy Duck, which has a single facial stripe. One stripe extended from the top of the bill through the eye and the other from the base of the bill across the cheek. A supercilliary stripe and the cheeks and throat were buffy. The warm buffy coloration of the face and throat was noticeably different from the dingy white cheeks and throat of a winter female Ruddy Duck. When we returned the following morning we flushed the bird, and it revealed white wing patches in the outer secondaries. It is noteworthy that, when flushed, it again sprang straight up out of the water. This behavior is well documented and is possibly an adaptation to the duck's preferred habitat of extensively vegetated marshes that limit the opportunities for a running takeoff on open water.

The duck showed a definite preference for an area of shallow water bordering a dense stand of cypress (*Taxodium* sp.) and Water Willow (*Decodon verticillatus*) heavily draped with Spanish Moss (*Tillandsia usneoides*). The shallow water was densely vegetated with emergents such as Jointed Spikerush (*Eleocharis equisefoides*), Maiden Cane (*Panicum hemitomon*), and white Water-lily (*Numphae odorata*) and with submerged Bog Moss (*Mayaca aubletii*) and Sphagnum Moss (*Sphagnum* sp.). The bird swam and dove, grebe-like, along the margins of the emergent vegetation. When approached, it would dive or swim into the emergent vegetation or stand of trees. On one occasion it emerged from a dive with only its head above water in an apparent attempt to escape detection. At no time was the Masked Duck observed to associate with nearby American Coots (*Fulica americana*), Ring-necked Ducks (*Aythya collaris*), Wood Ducks (*Aix sponsa*), or American Black Ducks (*Anas rubripes*).

The bird was last observed on 25 February. It was not located during an extensive search of the area on 7 March.

The normal range of the Masked Duck extends from the Gulf coast of Mexico and Central America and the West Indies south to northern Argentina. This species is considered rare and local even within its normal range. The preferred habitat consists of marshes and swamps where the water surface is extensively covered with emergent and floating vegetation. In the United States, the Masked Duck occurs irregularly in southern Texas with the first definite nesting occurring there in 1967. There are several records from southern Florida and single records from nine other scattered states (Alabama, Georgia, Iowa, Louisiana, Maryland, Massachusetts, New Jersey, Vermont, and Wisconsin). These records are summarized by Palmer (Handbook of North American Birds, Vol. 3, p. 523-525).

As with all extralimital sightings of waterfowl, one must contend with the possibility of escapes. Recent literature reveals that the Masked Duck has never been bred or maintained in captivity. This, coupled with previous extralimital records, indicates that the Masked Duck observed and photographed in Craven County, N.C., was most likely wild and not an escape.

Lake Ellis is a privately owned inholding within the Croatan National Forest. The authors thank Ellis Simon and Manley Fuller for giving us the opportunity to explore the area.

First Nesting of the Scissor-tailed Flycatcher in South Carolina

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On 6 July 1982, I found two adult Scissor-tailed Flycatchers (*Muscivora forficata*) at Youngs Community in upper Laurens County on the piedmont of South Carolina. One of them was on a nest when I arrived at 1100. The other bird was on a telephone line nearby.

The birds were first observed by Niles Osborne approximately 3½ weeks prior to my visit. They had begun to build the nest then. He reported the sighting to Mary Riddle, who identified the birds and notified me. The nest was built in a lone Willow Oak (*Quercus phellos*), in a fork at the end of a drooping branch. It was 15 feet above the ground, constructed of plant stems, dried grass, and some thistledown. The nest was well hidden by the oak leaves around it. The nest tree was between two buildings, a community center and a fire station. A mowed field was behind it and grown-up fields were in all directions. The birds foraged in these fields.

On 12 July at least one nestling was heard in the nest. One adult stayed on or near the nest while the other flew to the fields nearby. The adults were seen with grasshoppers in their beaks.

On 22 July the birds were not at the nest site. The male was on a telephone line 200 yards away. He flew to another line farther away, where the female was perched. From a pecan tree in the front yard of a house 50 feet away, a young bird was calling. The adults flew to another pecan tree, and the youngster followed. The parents would fly from the tree, collect food, and fly back to feed the young bird. Only one young bird was observed. The nest was collected and deposited in the collection of the South Carolina State Museum (#82.64.1).

This is one of the few records of a Scissor-tailed Flycatcher nesting east of the Mississippi River (Jackson, Amer. Birds 29:912, 1975). To my knowledge, this is as far east as this species has ever been known to breed. Although a Scissor-tailed Flycatcher was reported from Hilton Head Island, S.C., on 12 May 1973 (Chat 37:88), this is the first report of nesting from the Carolinas.

Low-elevation Record of Winter Wren During Breeding Season in Graham County, N.C.

OWEN L. McCONNELL
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On 19 June 1982 at 1600 EST, while walking in the Joyce Kilmer Memorial Forest in Graham County, N.C., with Pat and David McConnell, I encountered a singing Winter Wren (*Troglodytes troglodytes*). The location was about 500 m (1640 feet) beyond the memorial plaque that honors Joyce Kilmer on the right arc of the upper loop trail. We descended to the memorial plaque and there saw another (or the same) Winter Wren, which sang repeatedly. The next morning at 0700 EST, Jim McConnell and I returned to the memorial plaque and immediately heard a Winter Wren singing in the upper loop area about 50 m (160 feet) up the gentle slope from us. While we stayed in the area for about 30 minutes, the wren moved downhill into the lower loop area, ranging as far as 200 m (650 feet) below the memorial plaque. It sang repeatedly from various perches within the Rosebay (*Rhododendron maximum*) thickets, and we once observed it at a distance of about 6 m.

The elevation at the memorial plaque is about 770 m (2520 feet), and the wren ranged perhaps 12 to 13 m (40 feet) lower than that. A survey of the literature revealed no breeding-season records for the Winter Wren at such a low elevation in North Carolina. Stupka (Notes on the Birds of the Great Smoky Mountains National Park, 1963) states that in the Great Smoky Mountains Winter Wrens leave the lower slopes in April for the highest elevations (spruce-fir forest) where they nest with other Canadian-zone species such as Golden-crowned Kinglet (*Regulus satrapa*), Brown Creeper (*Certhia americana*), and Red-breasted Nuthatch (*Sitta canadensis*). *Birds of the*

Carolinas (Potter, Parnell, and Teulings, 1980) notes that little is known about the breeding habits of the Winter Wren in the southern Appalachians.

I have noticed that Winter Wrens at higher elevations in Graham County, where no spruce-fir forests grow, often have breeding territories that include the dense growths of rhododendron under hemlocks along the mountain streams and also the more open deciduous woods on the slopes above the rhododendrons. The low-elevation virgin forest of Joyce Kilmer may provide a habitat not unlike these higher sites in certain respects. Lying at the intersection of the lower and upper loop trails, the memorial plaque is a point of demarcation between two different types of habitat. Little Santeetlah Creek and its numerous tributaries create a moist, cool environment for the lower loop area. Shielded from the sun by Horse Cove Ridge to the south, this cove facing north is refrigerated even in midsummer. There the dominant tree is the Eastern Hemlock (*Tsuga canadensis*), some growing 4.5 m (15 feet) or more in circumference. The understory is composed of dense thickets of *R. maximum* of near tree size. Where hemlocks have fallen, mosses, ferns, and mushrooms grow. The upper loop area, on the other hand, is virgin cove-hardwood forest, dominated by giant Tulip Trees (*Liriodendron tulipifera*)—some over 2.1 m (7 feet) in diameter and over 6.1 m (20 feet) in circumference. The understory consists of a rich variety of trees and is more open at ground level (no rhododendron), permitting a lush growth of ferns and wildflowers. Although it is not clear whether one or two Winter Wrens were seen, the one observed at the memorial plaque on the morning of 20 June did have a range overlapping both types of habitat.

BOOK REVIEW

A.B.A. CHECKLIST: Birds of Continental United States and Canada

Stuart Keith, chairman, A.B.A. Checklist Committee. 1982. (Second edition) The American Birding Association, Box 4335, Austin, Texas 78765. 90 p. Softcover. $8.25 (A.B.A. members), $9 (nonmembers), plus $2.25 postage and handling.

This checklist, which follows the taxonomic order of common and scientific names that will appear in the sixth edition of the A.O.U. *Check-List*, should be extremely useful to bird students during the period of adjustment to the new nomenclature. Nearly a third of the booklet is devoted to a "Summary of Records of Accidentals and Other Species," a feature that will interest those who intend to purchase the A.O.U. publication but need a quick reference on rare birds. Although numerous sight records are included in the citations for the accidental species, great care seems to have been exercised in deciding which sight records offer adequate details for acceptability. In several cases where I have some familiarity with the published literature, I consider the judgment of the A.B.A. committee to have been commendably conservative. Space has been allowed for the owner to add records from supplements to be published annually in *Birding*, the A.B.A. magazine. The inside back cover is devoted to the A.B.A. Code of Ethics—something that should be publicized as bird watching attracts highly competitive people who may thoughtlessly create problems for wildlife, property owners, and fellow naturalists.—EFP

BRIEFS FOR THE FILES

HARRY E. LeGRAND JR.

(All dates 1982 unless otherwise indicated)

COMMON LOON: The peak count at Lake Julian, near Asheville, N.C., was six on 10 April; and one was late on nearby Beaver Lake on 8 May (Robert Ruiz, Bill Duyck, Jerry Young).

EARED GREBE: Philip Crutchfield and M.E. Whitfield observed one in full breeding plumage at Prong Creek in northeastern Pamlico County, N.C., on 30 April.

NORTHERN FULMAR: The southernmost record for North Carolina was four fulmars seen 40 miles S of Beaufort Inlet on 2 April by Lloyd Davidson.

SOOTY SHEARWATER: The only Sooty seen in North Carolina waters during May was one noted at Cape Lookout by Skip Prange on 19 May. James Parnell took care of a sick bird that came ashore at Topsail Beach, N.C., on 12 June.

BLACK-CAPPED PETREL: A typical count for the waters off Cape Hatteras, N.C., in late May was the 14 tallied on 30 May by Paul DuMont, Robert Ake, and party.

BAND-RUMPED STORM-PETREL: Two were noted in a small flock of Wilson's Storm-Petrels approximately 37 miles SSE of Hatteras Inlet, N.C., on 30 May by Paul DuMont, Robert Ake, and party. Details of the sighting will be published in the September 1982 issue of *American Birds*.

WILSON'S STORM-PETREL: Uncommonly seen from shore were 12 counted by Allen Bryan at Cape Hatteras point on 16 May, and he saw five more at the town of Hatteras on the same day.

AMERICAN WHITE PELICAN: A very good total for the Carolinas was three pelicans noted by Allen, William, and Jo Hutcheson at Charleston, S.C., on 26 March.

DOUBLE-CRESTED CORMORANT: This species was common during the spring at Jordan Reservoir in eastern Chatham County, N.C., with a remarkable 73 tallied on the spring count there on 9 May (fide Barbara Roth). Other inland records (excluding those on spring counts) were one at Fayetteville, N.C., on 10 and 22 May (Philip Crutchfield); one flying over Raleigh, N.C., on 14 May (Jim Mulholland); and four at Lake Cammack, near Burlington, N.C., on 27 May (Allen Bryan).

LITTLE BLUE HERON: There were an unusually large number of spring sightings for inland North Carolina. In addition to spring bird count reports from Raleigh, Durham, and Winston-Salem, one to two were observed near Whispering Pines in Moore County on 16 to 18 April (Dick Thomas, Jay Carter, and others), six were at Jordan Reservoir on 24 April (Chapel Hill Bird Club), and an immature was at Fayetteville on 22 May (Philip Crutchfield).

CATTLE EGRET: One seen by Melvin Fowler was notable near Archer's Lodge, Johnston County, N.C., on 29 May.

GREAT EGRET: Infrequent inland in spring were single birds observed by Allen Bryan at Jordan Reservoir on 20 March and by Harry LeGrand and Alan Avakian at Clemson, S.C., on 27 March.

SNOWY EGRET: This species is quite rare inland in spring; thus, noteworthy were individuals seen near Whispering Pines on 17 April (Jay Carter, Dick Thomas) and at Winston-Salem on 29 April (Charles Frost, Ramona Snavely, Bob Witherington).

BLACK-CROWNED NIGHT-HERON: At Jordan Reservoir, Bill and Margaret Wagner observed six on 5 April, and one was there through 16 April.

YELLOW-CROWNED NIGHT-HERON: A rare nesting for the piedmont occurred in Greenville, S.C., during the summer of 1980, fide Stanlee Miller. Five young were fledged from a nest, but one of the juveniles was hit by a car on 1 July. Another juvenile, perhaps raised locally, was found dead by John Cely at Union, S.C., on 5 July 1980. Both birds are now study skins at Clemson University.

GLOSSY IBIS: An outstanding inland count was the 35 birds seen in several flocks at Jordan Reservoir on 5 April by Bill and Margaret Wagner and party. Eight were still there on 16 April.

MUTE SWAN: Observers who saw a swan at Fort Fisher, New Hanover County, N.C., from late April to early May considered it "wild" and countable (Ricky Davis, John Fussell, and others).

NORTHERN PINTAIL: Paul DuMont and party saw four in the Bodie and Pea Islands area, N.C., on 31 May. As possibly mated pairs have been reported from this region in recent summers, these birds might have been breeders.

AMERICAN WIGEON: Philip Crutchfield observed a very late male on 20 May at Fayetteville.

NORTHERN SHOVELER: Rare for the mountains were three seen by Robert Ruiz on 20 March near Fairview in Buncombe County, N.C.

GREATER SCAUP: The only inland spring report was a male seen by Harry LeGrand at Sandy Springs, Anderson County, S.C., on 21 March.

LESSER SCAUP: A good inland count was 250 noted by Douglas McNair at Lake Keowee, Oconee County, S.C., on 1 April.

WHITE-WINGED SCOTER: A female was rather late in Atlantic Beach, N.C., on 17 April, as noted by Wayne Irvin; and rare inland was one seen by Douglas McNair and Jeff Beacham on Lake Keowee on 25 March.

SURF SCOTER: An excellent inland count was five, including two males, seen by Jeff Beacham and Steve Wagner at Lake Keowee on 12 April.

RED-BREASTED MERGANSER: Late individuals in inland North Carolina were one near Fayetteville on 10 May (Philip Crutchfield), six at Beaverdam Reservoir in northern Wake County on 12 May (Ricky Davis), and one at Jordan Reservoir on 15 May (Bill and Margaret Wagner).

AMERICAN SWALLOW-TAILED KITE: There were numerous records for the North Carolina coast of birds having overshot their breeding range: at North River near Beaufort on 25 April (Ricky Davis, John Fussell), at Oregon Inlet on 13 May (fide Fussell), at Ocracoke on 17 May (Wayne and

Fran Irvin), two near Avon on 29 May (Wayne Irvin et al.), and one at Pea Island on 31 May (Paul DuMont and party).

MISSISSIPPI KITE: A first spring report for the Outer Banks was an adult seen flying N near Avon, N.C., on 29 May by Merrill Lynch and Lance Peacock. It was seen one-half hour later at Bodie Island (as were the two Swallow-tailed Kites) by Jim Orgain and Dennis Abbott.

SHARP-SHINNED HAWK: Tom Haggerty noted an apparently mated pair, both in second-year plumage, on 23 and 30 May at a stand of White Pines at Bass Lake near Blowing Rock, N.C.

ROUGH-LEGGED HAWK: Rare and late was a dark-phase individual, with the white tail and dark terminal band, seen by Philip Crutchfield on 14 April near Fayetteville.

BALD EAGLE: Inland reports for North Carolina were of single birds near Burlington on 9 March (Allen Bryan), near Aberdeen on 21 April (Haskell Duncan), at Jordan Reservoir on 25 April (Bryan, John Alderman), and at Beaverdam Reservoir from 28 March to mid-April with another there from 12 May into early July (Ricky Davis).

NORTHERN HARRIER: Two noted by Wayne Irvin, Derb Carter, and others at Cedar Island, N.C., on 31 May possibly were breeding individuals.

OSPREY: Two were seen by Ricky Davis on the late date of 5 June at Beaverdam Reservoir.

PEREGRINE FALCON: Rare inland, particularly in spring, was an immature seen by Philip Crutchfield near Fayetteville on 7 April.

MERLIN: One was rather late at Pea Island on 9 May, as seen by Ray and Michelle Chandler; but very late was an individual noted by Larry Crawford at Pine Knoll Shores, Carteret County, N.C., on 29 May.

AMERICAN KESTREL: Possibly indicative of breeding were two females or immatures near Fayetteville on 9 May (Philip Crutchfield, Mike Dennis) as well as a male at Dorothea Dix Hospital on 12 and 13 May and another bird at Central Prison on 26 May, both in Raleigh (Wayne Irvin). Irvin has seen birds at the prison on many occasions previously in June, suspecting that they nest in the walls of the prison.

PURPLE GALLINULE: Most unusual was a gallinule found in a yard in Morehead City, N.C., by B.H. Stover on 28 March. The bird died shortly afterward and was given to the North Carolina State Museum.

COMMON MOORHEN: An adult seen at Winston-Salem on 6 May by Dorothy Kalet and Ramona Snavely had landed on a highway and had fractures of both legs.

BLACK-NECKED STILT: One was noted by James Parnell and Mark Shields on 12 May at the lower Cape Fear River, N.C., where it is a rare migrant. Probable breeders were the 12 seen by Philip Crutchfield at impoundments in northeastern Pamlico County on 30 April and 1 May.

LESSER GOLDEN PLOVER: An excellent inland count was seven seen at the Falls of the Neuse Reservoir lakebed in eastern Durham County, N.C., on 10 April by Mike Schultz and Andy Towle. Another was seen in plowed fields near Pendleton, S.C., on 14 and 21 March by Harry LeGrand.

BLACK-BELLIED PLOVER: One was rare and quite early near Clemson, S.C., on 9 April (Alan Avakian). At Jordan Reservoir, Ricky Davis saw eight on 9 May, and Bill and Margaret Wagner had one on 11 May. Davis also observed three on 11 May at Beaverdam Reservoir.

WHIMBREL: This species is seldom seen in numbers in the Bodie-Pea Islands area; thus, 88 noted by Allen Bryan at Bodie Island on 15 May was a very good count.

UPLAND SANDPIPER: Tom Haggerty observed an individual on 11 April near Goldsboro, N.C.

GREATER YELLOWLEGS: Ricky Davis had a peak count of 36 birds at Beaverdam Reservoir this spring (on 12 April).

RUDDY TURNSTONE: Very rare inland in spring was a turnstone seen by Bill and Margaret Wagner at Jordan Reservoir on 15 May.

NORTHERN PHALAROPE: The only sighting for the spring season was three males noted on a pelagic trip off Hatteras Inlet on 30 May (Paul DuMont et al.).

RED PHALAROPE: Dennis Forsythe had 100+ birds in several flocks approximately 25 to 30 miles off Charleston, S.C., on 21 March, the only pelagic species observed on the trip.

SHORT-BILLED DOWITCHER: Scarce inland in spring was an individual noted by Philip Crutchfield on 10 May at Fayetteville.

WESTERN SANDPIPER: Ricky Davis observed one at Beaverdam Reservoir on 12 May.

LEAST SANDPIPER: Although this species winters regularly in the Clemson area (provided that mudflats are present on Lake Hartwell), two were early migrants at Sandy Springs on 21 March (Harry LeGrand). An outstanding inland count was 160 at Beaverdam Reservoir on 12 May, as noted by Ricky Davis.

WHITE-RUMPED SANDPIPER: One was early at Fort Macon State Park, N.C., on 21 April (John Fussell). Inland, the species was reported in May from Pendleton, S.C., as well as Jordan and Beaverdam Reservoirs, with a good tally of 11 at the last site on 12 May (Ricky Davis).

BAIRD'S SANDPIPER: Paul DuMont and Robert Ake observed an adult at Pea Island on 31 May, only the second spring report for North Carolina. The bird was with Semipalmated Sandpipers but was the size of a White-rumped Sandpiper. It had "black legs; pale buffy base color to breast and fore flanks, with thin black streaks on breast and irregular, broken, double row extension of black dash-spots along flanks; black mid-vein in tail (seen in flight); brownish back with indistinct scalloping (a la a fall bird)." [The quoted details were taken directly from a letter from DuMont. —HEL]

DUNLIN: On 11 May, Ricky Davis observed three birds at Beaverdam Reservoir.

POMARINE JAEGER: John Fussell had an excellent count from shore of 14 Pomarines (in 2 hours) on 26 April at Atlantic Beach, N.C.

GLAUCOUS GULL: An excellent description was provided for a bird in first-spring plumage seen by Ray and Michelle Chandler and Tom Wilcox at Oregon Inlet, N.C., on 9 May, a fairly late date for this rare winter visitor.

GREAT BLACK-BACKED GULL: Very rare inland was an immature observed by Allen Bryan at Jordan Reservoir on 20 March.

BONAPARTE'S GULL: Notable for the mountains were five seen on 19 and 21 March at Beaver Lake in Asheville (Robert Bruce, Jerry and Ruth Young). High inland counts, at Jordan Reservoir, were 112 on 8 April and 132 on 10 April, as tallied by Allen Bryan.

LITTLE GULL: Apparently the latest ever for North Carolina was a winter-plumaged adult observed by Wayne Irvin and John Fussell in a large flock of Bonaparte's Gulls at Atlantic Beach on 3 April.

BLACK-LEGGED KITTIWAKE: Very late, and unusual away from the ocean, was an immature seen by Philip Crutchfield and M.E. Whitfield flying with Laughing Gulls and terns over an impoundment in northeastern Pamlico County, N.C., on 30 April. The dark "M" on the mantle, collar neck band, and other field marks were described in detail.

SABINE'S GULL: The first ever seen on a North Carolina pelagic trip was an adult noted approximately 35 miles off Hatteras Inlet on 30 May by Harry LeGrand, Paul DuMont, and party. The very distinctive pattern of gray, black, and white of the mantle, especially the black triangle from the wrist to the primaries, was clearly seen

FORSTER'S TERN: The only inland reports were single birds seen at Owen Park Lake at Asheville on 21 April (Robert Ruiz) and at Lake Wheeler near Raleigh on 28 April (Jim Mulholland).

COMMON TERN: Seven (six in breeding plumage) were observed by John Fussell at Cape Lookout on 10 April, the earliest he has seen the species in Carteret County.

BRIDLED TERN: Nine were noted by Paul DuMont and party off Hatteras on 30 May, all birds being in a well-developed drift line. The scarcity of this species in offshore Carolina waters over the past couple of years might have been due to hurricanes and tropical storms. However, Bridleds are commonly seen in the vicinity of driftwood and other debris (on which to perch), and DuMont speculated that the recent scarcity might have been related to the poor development of drift lines along the edge of the Gulf Stream, with the one on 30 May being the most clearly defined line he had seen in 4 years.

LEAST TERN: The species arrived earlier than usual at Cape Lookout, as a count of 120 was very high for the date of 10 April (John Fussell).

BLACK TERN: Spring migrants usually pass through the Carolinas in May or early June; thus, early was one seen by John Fussell at Atlantic Beach on 26 April.

BLACK-BILLED CUCKOO: The only report for the season was one noted by James Coman near Blanch, Caswell County, N.C., on 4 May.

NORTHERN SAW-WHET OWL: Jerry and Ruth Young saw one at Devils Courthouse, N.C., along the Transylvania-Haywood County line, on 14 March, and they heard seven birds in that area on 4 April.

GRAY KINGBIRD: Individuals were north of their breeding range at Hatteras (Harry LeGrand et al.) and at Bodie Island (Robert Ake, Jeff Byrd), both on 31 May.

WILLOW FLYCATCHER: Ramona Snavely reported that several males were again singing on territory this spring along Salem Creek in Winston-Salem, one of the few piedmont nesting sites in North Carolina.

ALDER FLYCATCHER: Tom Haggerty noted a singing bird at the junction of Howard Creek and South Fork New River in Watauga County, N.C., on 29 May. The elevation was 3040 feet, very low for a bird that was probably on territory. Several singing Willow Flycatchers were within a mile of the Alder. The population near the Shining Rock Wilderness Area in southern Haywood County, N.C., appears to be expanding, as Harry LeGrand had four singing birds and a calling individual there on 19 May.

TREE SWALLOW: Bill Duyck found a pair nesting at Woodfin, Buncombe County, N.C., at the same site that breeding occurred last year. Six young fledged in June.

CLIFF SWALLOW: Paul DuMont and Robert Ake saw a pair of adults and a partly completed nest under the bridge at Oregon Inlet on 29 and 31 May. This is the first nesting record for the coastal plain of North Carolina. Ricky Davis saw an early migrant near Raleigh on 10 April, whereas one at Cedar Island on 15 May was rare for Carteret County (Bob Holmes, John Fussell).

BROWN-HEADED NUTHATCH: Several were again noted by Bill Duyck in his yard near Asheville on 7 and 8 April. Despite a scattering of recent reports from Buncombe County, there is still no breeding record for the mountains of North Carolina.

CAROLINA WREN: Harry LeGrand and Steve Wagner heard one singing in mixed spruce-fir and hardwoods at an elevation of 5300 feet on 19 May near Bearpen Gap, Jackson County, N.C., along the Blue Ridge Parkway. This wren is not known to breed in the spruce-fir zone.

WATER PIPIT: Two pipits were late in departing on 11 May at Beaverdam Reservoir, as seen by Ricky Davis.

SPRAGUE'S PIPIT: One of the few records for North Carolina was one seen by Bruce Lord on 12 April at Jordan Reservoir where NC 751 crosses the lake. The details submitted include: "heavily streaked back, head, onto breast; thin beak, not finch-like; flesh-colored legs; white outer tail feathers; light stripe over eye and streaks on head; walking slowly along water's edge on smooth dirt and boulders; no vocalizations; no tail-bobbing; buffier, paler in overall appearance than Water Pipit."

WHITE WAGTAIL: A first record for eastern North America was an individual of the Siberian black-backed race (*Motacilla alba lugens*) seen by John Fussell and Bob Holmes at Cedar Island on 15 May. A local photographer took pictures of the wagtail. Full details will appear in a national journal.

WHITE-EYED VIREO: Allen Bryan noted an early individual at Jordan Reservoir on 20 March.

WARBLING VIREO: A noteworthy find was a bird singing, apparently on territory, along Clark Creek, near Valle Crucis, Watauga County, N.C., on 30 May (Tom Haggerty).

SWAINSON'S WARBLER: Unusual for Bogue Banks, N.C., was one noted singing by Larry Crawford on 24 April at the Theodore Roosevelt Natural Area.

GOLDEN-WINGED WARBLER: Very rare along the coast in spring was a male seen by J.R. Morris at Seabrook Island, S.C., on 27 April.

TENNESSEE WARBLER: Albert Conway saw and heard a Tennessee at Rock Hill, S.C., on 7 May.

ORANGE-CROWNED WARBLER: John Fussell noted birds in eastern North Carolina near Long Lake in Craven County on 28 March, at Cape Lookout on 10 April, and near North River community in Carteret County on 20 April. Scarce in the piedmont were two at Raleigh on 9 April (Jim Mulholland), one near Burlington on 20 April (Allen Bryan), and one at Jordan Reservoir on 25 April (Bryan, John Alderman).

NASHVILLE WARBLER: Rare and quite early was one seen by Owen McConnell at Cheoah Lake, Graham County, N.C., on 14 April. Another was noted by Wayne and Fran Irvin at Jordan Reservoir on 2 May.

NORTHERN PARULA: This species usually arrives in piedmont North Carolina in early April; therefore, one was very early at Jordan Reservoir on 20 March (Allen Bryan).

CAPE MAY WARBLER: Extremely early, or perhaps overwintering, were four birds in full breeding plumage, seen in a flock of Yellow-rumped Warblers at Raleigh on 24 March by Jim Mulholland.

BLACK-THROATED BLUE WARBLER: Owen McConnell noted an early individual, probably on its breeding grounds, at Joyce Kilmer Memorial Forest, Graham County, N.C., on 13 April.

BLACK-THROATED GREEN WARBLER: An excellent count for late March was 40 singing birds in a swamp N of Long Lake, N.C., on 28 March (Bob Holmes, John Fussell). This species arrives on its breeding grounds in the lower coastal plain of the Carolinas by mid- or late March, but it has mostly finished its singing period by mid-May, a time when much of the nesting-season field work is beginning. Thus, observers have probably greatly underestimated the abundance of the species as a breeder, especially in eastern North Carolina.

CERULEAN WARBLER: Tom Haggerty noted one singing, likely on territory, approximately 3.2 miles W of Triplett, Watauga County, N.C., on 22 May. The habitat was open mature hardwoods at 2800 feet in elevation; this is perhaps the first suggestion of breeding for the species in that county.

BLACKBURNIAN WARBLER: One was late, as was a Black-throated Green Warbler, near Southern Pines, N.C., on 18 May, both being observed by Libba Watson.

WATERTHRUSH (sp.?): Skip Prange saw a waterthrush at Harkers Island, N.C., on the very early date of 8 March. He watched it feeding at a mud puddle but did not have binoculars available to assist with the identification.

WILSON'S WARBLER: Rather rare for the mountains were two males seen by Ricky Davis near Blowing Rock, N.C., on 16 May.

BOBOLINK: Perry Nugent noted as many as 1000+ near Charleston from 3 to 9 May.

WESTERN TANAGER: An individual that was seen at a Fayetteville feeder during the winter was last noted on 30 March (Ruth Chesnutt, Kathryn McCoy).

SCARLET TANAGER: A male was rare and early at Cape Lookout on 13 April, fide John Fussell.

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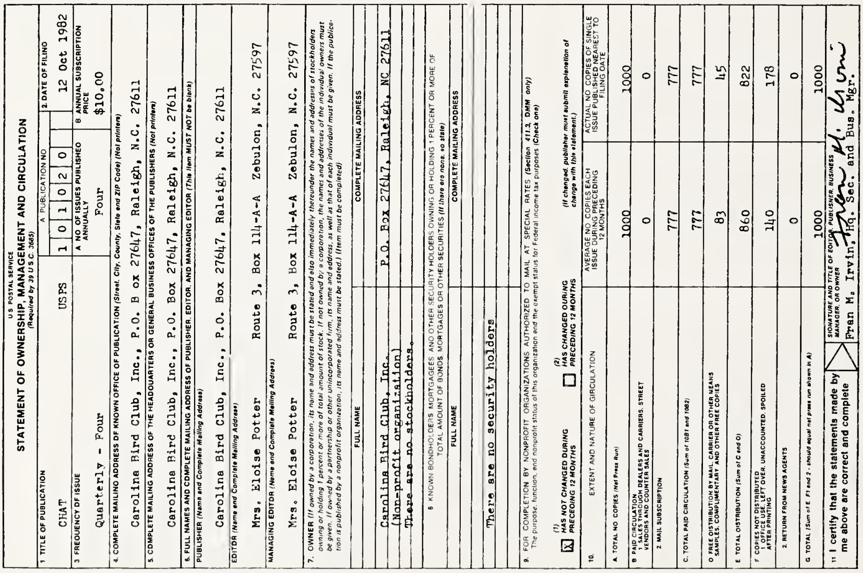

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The Chat

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The Chat

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OUR COVER—For full details about the Groove-billed Ani photographed by David Goeke at Savannah N.W.R. in October 1979, see the General Field Notes. Recent reports of large numbers of Swallow-tailed Kites at the Santee River delta in South Carolina reminded Mary Kay Clark of the flocks of soaring birds she photographed in Florida in July 1982 (back cover).

TROPICBIRDS IN THE CAROLINAS: STATUS AND PERIOD OF OCCURRENCE OF TWO TROPICAL PELAGIC SPECIES

DAVID S. LEE AND E. WAYNE IRVIN

The recent documentation of a second species of tropicbird in the northwest Atlantic Ocean (Bull 1964, Lee et al. 1981) makes it desirable to summarize and evaluate the current knowledge of the status and the season of occurrence for the two tropicbirds in the offshore waters of the Carolinas. The records presented here provide a needed base against which future records can be tallied. They come from a widely diverse body of published sight reports, unpublished records maintained at the North Carolina State Museum, and personal field experience. Few specimens, photographic records, or literature reports provide enough details to separate the two species of Atlantic tropicbirds. This is understandable because prior to 1964 there was little reason to suspect that any tropicbird seen off the coast of North America was anything other than a White-tailed (*Phaethon lepturus*). The reported occurrence of the Red-billed Tropicbird (*P. aethereus*) off the southeastern coast (Lee et al. 1981) makes the specific identification of previous sight reports suspect. It is our purpose to alert readers to this problem as well as to evaluate the status of these two species based on the fragmentary information presently available.

IDENTIFICATION AND BEHAVIOR

The problems of specific identification between White-tailed Tropicbirds and Red-billed Tropicbirds are discussed in detail by Lee, Wingate, and Kale (1981). Basically, *Phaethon* are high-flying birds and therefore are normally seen from below, while most of their distinguishing field marks are on the dorsal surface. Additionally, the immature Red-billed has a yellow bill, the breeding-season White-tailed may have a reddish bill, and immatures of both species and the adult Red-billed have thin barring on the back and upper wing surfaces (Fig. 1, 2). Differences in size and relative bill thickness are appreciated only after both species have been well studied, and then are useful characters only at short distances under good field conditions (Fig. 3). Thus, confirmation of bill size and color, dorsal pattern, and presence of tail streamers would be desirable for accurate, specific identification of adults. Field identification of flying immatures would be difficult under most circumstances for people not familiar with both species. [It should be noted that parallel identification problems exist for the three frigatebirds (*Fregata* sp.) that occur in the Atlantic.]

We found flying fish (*Exocoetidae* sp.) in the stomachs of both species of tropicbirds, and remains of squid in White-taileds. Although the prey items examined were large, because of partial digestion the fish and squid were not identifiable to species. The tropicbirds' habit of flying above moving boats may actually be a learned feeding adaptation. Flying fish are frequently flushed into "flight" by boats, thus providing plunge-diving tropicbirds increased foraging efficiency.

SUMMARY OF TROPICBIRD RECORDS

North Carolina: For nearly 20 years the only information available was the three records given by Pearson, Brimley, and Brimley (1942). The first report was a sighting on 3

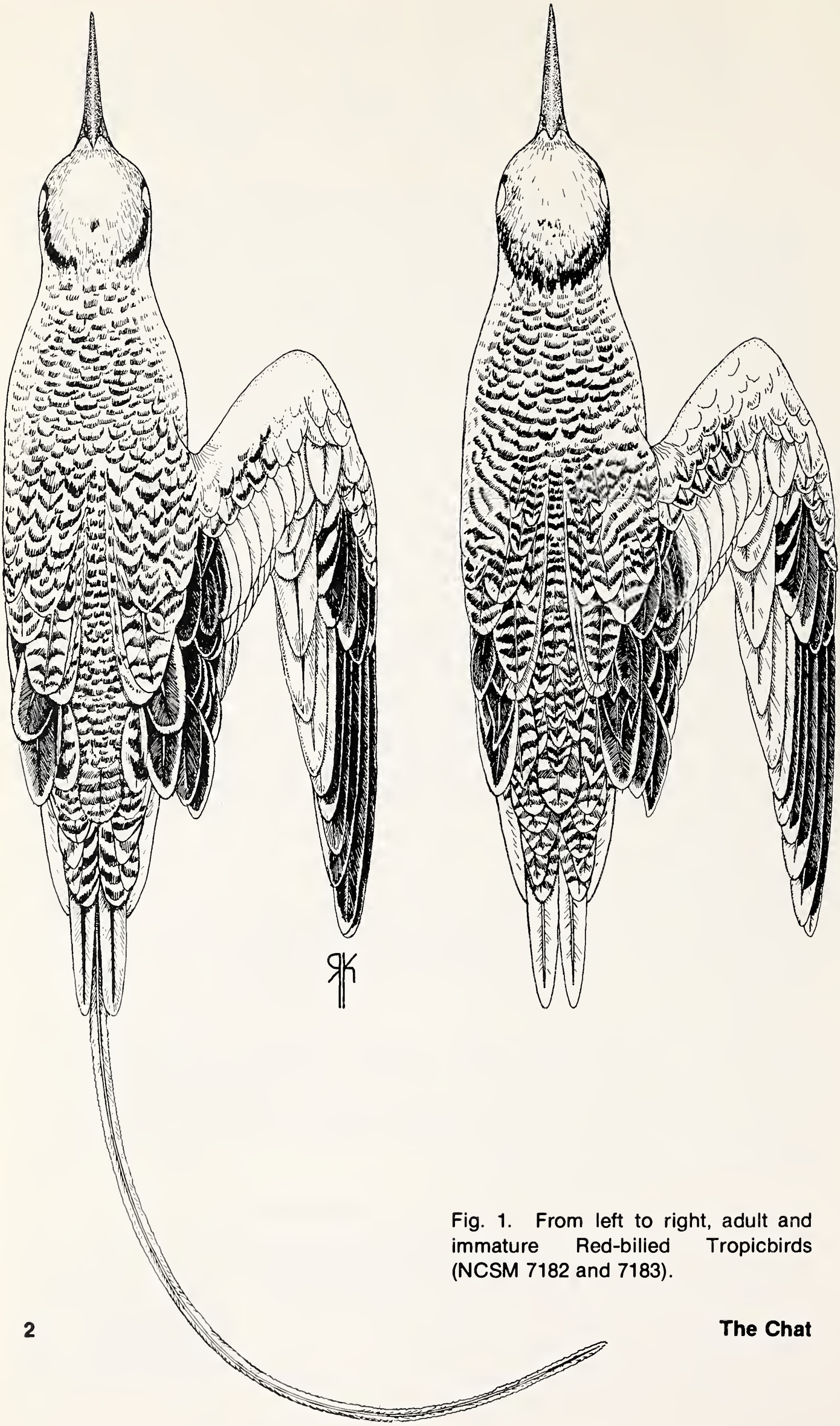

Fig. 1. From left to right, adult and immature Red-billed Tropicbirds (NCSM 7182 and 7183).

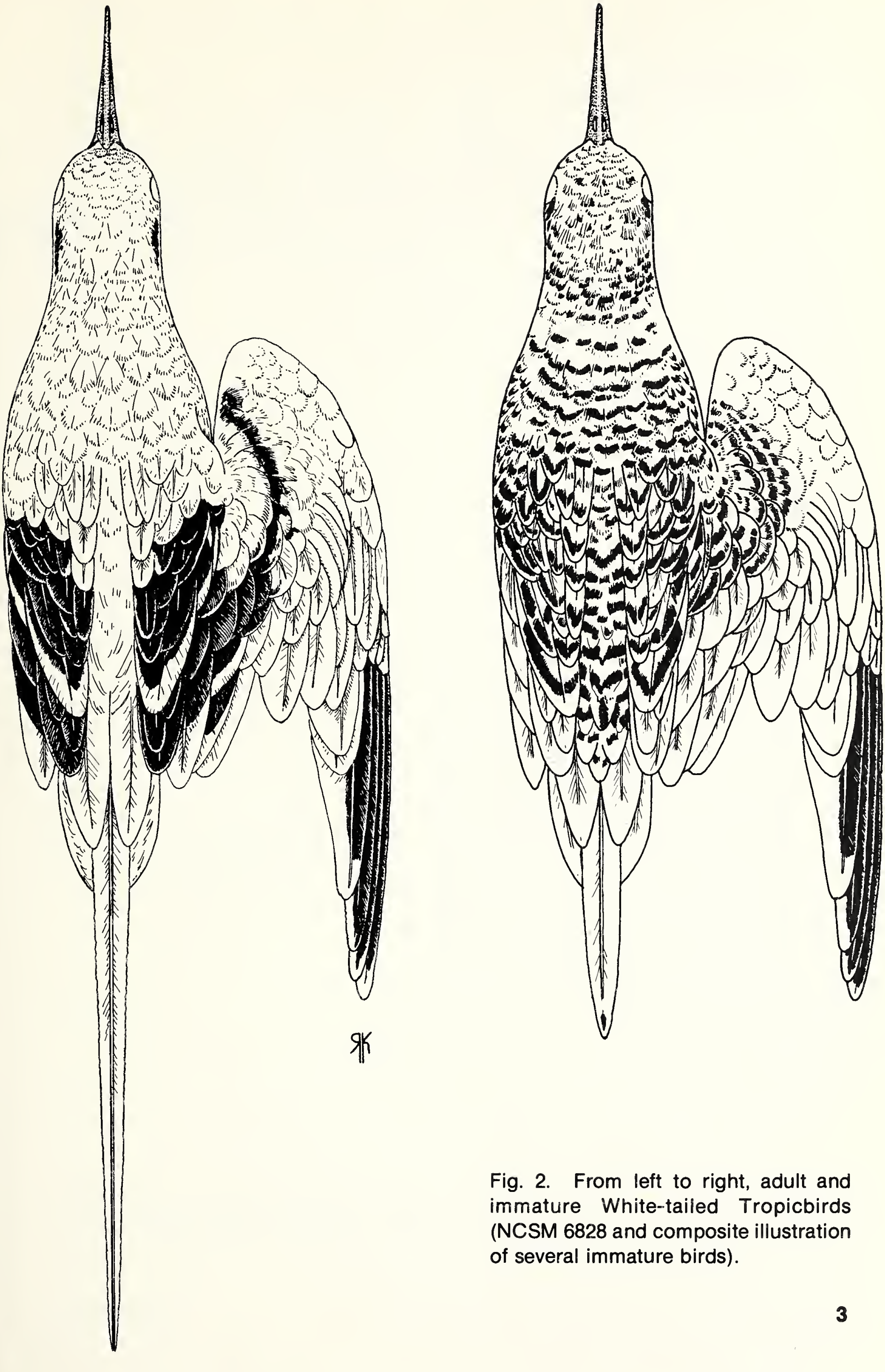

Fig. 2. From left to right, adult and immature White-tailed Tropicbirds (NCSM 6828 and composite illustration of several immature birds).

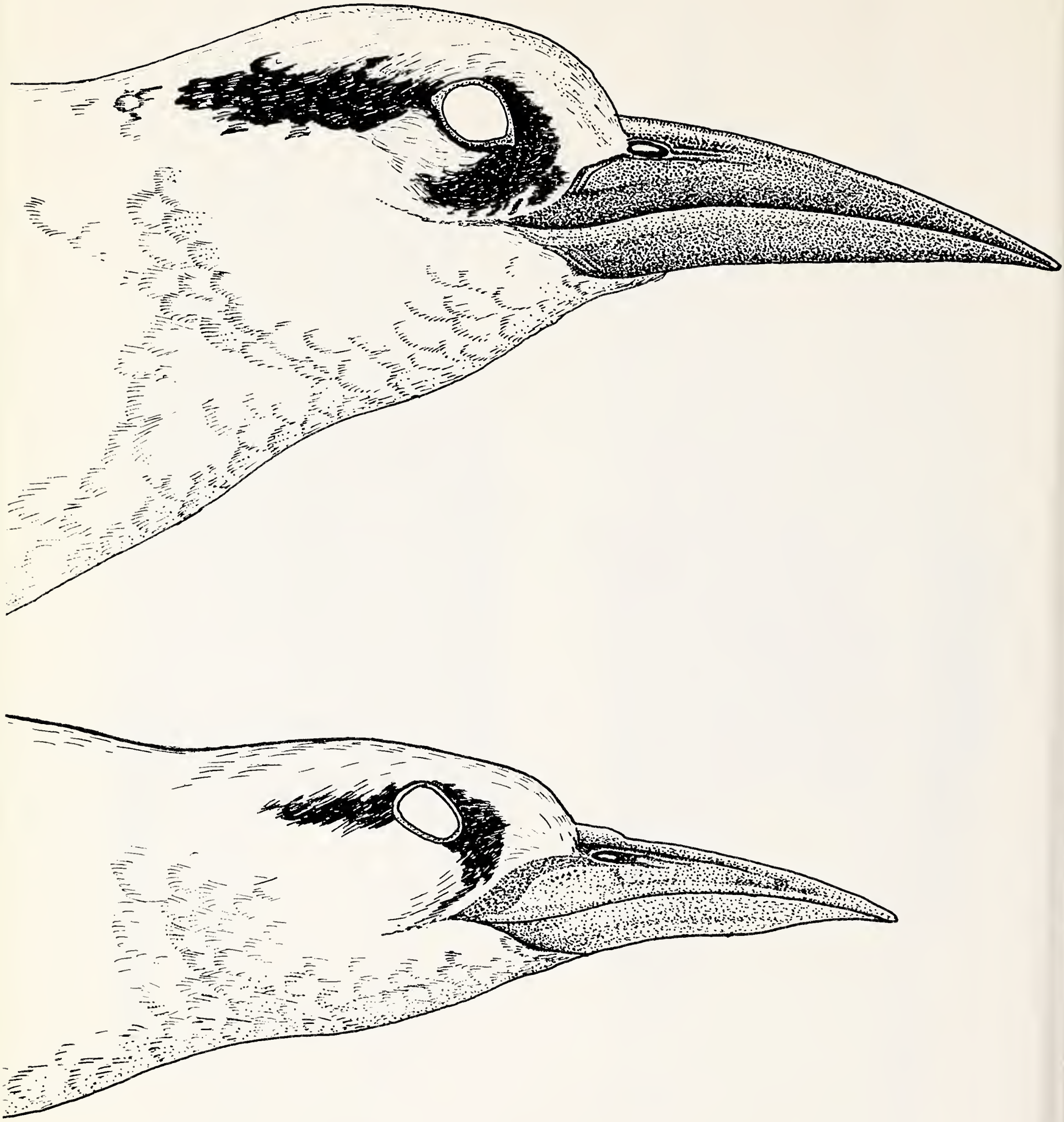

Fig. 3. Adult Red-billed Tropicbird (NCSM 7-182, above) and adult White-tailed Tropicbird (NCSM 6828, below). These life-size drawings illustrate the subtle differences in the bill proportions of the two species.

August 1936, 15 miles off Cape Lookout. (Brimley's original notes [1937] state: "One seen by a party from the U.S. Fish Commission Laboratory 20 miles off Cape Lookout, on or about August 12, 1936. R. Collie.") The second sighting occurred 25 July 1941 in the Gulf Stream off Beaufort. An "immature" specimen was reported as having been found dead on the beach at Pea Island on 5 July 1939. (NCSM records state that the bird was an adult found on 18 August 1939.) The photograph and skull of this beached specimen are apparently lost, and the description in *Birds of North Carolina* is not adequate for determining which species was found. No additional reports appeared in the 1959 revision of this book; however, one early record (Gault 1902) has long been overlooked.

Between 1959 and the start of the North Carolina State Museum's intensive studies of seabirds in 1975, several sightings of White-tailed Tropicbirds were published in *Chat, American Birds,* or both journals (see Table 1). Lee and Booth (1979) summarized the available records. They were aware of a total of 19 reports, which seasonally ranged from 8 June to 11 September. All were assumed to be reports of White-tailed Tropicbirds because that was the only species then known to occur in the area. Since 1979, additional tropicbird records have come to our attention. Sightings confirmed to species seem to be equally divided between the two North Atlantic species (see Table 1).

South Carolina: Sprunt and Chamberlain (1949) report a single *P. lepturus* record that "Astonishingly enough comes from the foot of the Blue Ridge Mountains." The only specimen record for the state was picked up in Jocassee, Oconee County, on 30 July 1926. The authors of *South Carolina Bird Life* went on to add: "Even to one not familiar with the species the bird can hardly be confused with anything else. The beautiful, streaming feathers of the tail are at once diagnostic." Between 1954 and 1974, four additional sightings were published (see Table 1), and all were listed as White-tailed Tropicbirds.

Specimen and photographic records: Because of the problems created by having few specifically verifiable records of the two similar-appearing tropicbirds now known from the Carolinas, some of our previous understanding of the seasonal distribution and abundance of White-tailed Tropicbirds has become masked. Interestingly, the only two specimens of a White-tailed Tropicbird for North Carolina (see Table 2) represent the earliest (18 June) and latest (11 September) records of seasonal occurrence. Paul Sykes (Amer. Birds 29:40) examined "good slides" of a White-tailed Tropicbird taken by a boat captain off Hatteras in July 1975, and Mike Tove photographed an adult (Fig. 4) on 2 September 1979 at the "rock pile" off Cape Hatteras. The bird seen by Lee 33.5 miles SE of Beaufort, N.C., was certainly a White-tailed. This identification is based on his experience with both species. Irvin photographed an adult and an immature (Fig. 5) of this species on 15 August 1982 off Beaufort, N.C. The one specimen record for South Carolina of a storm-driven *P. lepturus* has already been discussed. This makes a total of eight positively identified White-tailed Tropicbirds for the two states.

Four confirmed records for Red-billed Tropicbirds exist for North Carolina. Two specimens were collected 16 May 1981 (one adult and one immature); one adult (Fig. 6) was photographed by Irvin on 6 May 1981, 23 miles E of Cape Lookout; and one adult was seen off Oregon Inlet on 1 September 1981 by Lee, Eloise Potter, Steve Plantania, and Mary K. Clark. There are presently no reports of Red-billed Tropicbirds from South Carolina.

All other records from the Carolinas must, because of lack of published details, be regarded as tropicbirds of undetermined species. This includes the specimen (skull only)

TABLE 1. Summary of tropicbird reports from the Carolinas. All locations are in North Carolina unless South Carolina is specified.

Date	*Location*	*Number*	*Source*	*Remarks*
mid-April 1974	70 miles off Charleston, S.C.	1	Amer. Birds 28:788	
26 April 1980	35 miles SE of Oregon Inlet at 27 fathoms	1	this study	
6 May 1981	23 miles E of Cape Lookout	1	this study, EWI	*P. aethereus* photo record
16 May 1979	40 miles W of Oregon Inlet	1	Lee et al. 1981	*P. aethereus* (imm.) NCSM specimen
17 May 1979	off Oregon Inlet	1	this study	
29 May 1959	18 nautical miles SSE of Charleston, S.C. sea buoy	1	Manigault 1959	
1 June 1977	off Oregon Inlet	1	this study, DSL	distant bird, not good view
3 June 1981	ca. 35 miles ESE of Oregon Inlet at 100 fathoms	2	this study	
6 June 1978	off Oregon Inlet	1	this study	
8 June 1976	off Oregon Inlet	2	Lee & Booth 1979	
14 June 1975	ca. 40 miles SE of Charleston, S.C.	1	Amer. Birds 29:958	
15 June 1976	off Oregon Inlet	3	this study	
18 June 1981	off Beaufort	1	this study	*P. lepturus* NCSM specimen
25 June 1976	34° 17′ N, 76° 12′ W 33.5 miles SE of Beaufort Inlet	1	this study, DSL	*P. lepturus*
? July 1975	off Cape Hatteras	1	Amer. Birds 29:40	*P. lepturus* photo record
7 July 1981	off Oregon Inlet	1	this study	
18 July 1975	ca. 45 miles SE of Morehead City	1	Chat 40:17	
18 July 1980	42 miles NE of Oregon Inlet	2+	this study	

TABLE 1, continued

Date	*Location*	*Number*	*Source*	*Remarks*
19 July 1977	off Oregon Inlet	1	this study	
25 July 1941	off Beaufort, Gulf Stream	1	Pearson et al. 1942	
25 July 1958	30 miles offshore, 20 miles S of Cape Hatteras	1	Harte and McCallum 1959	
25 July 1978	off Oregon Inlet	1	this study	
29 July 1980	37 miles E of Oregon Inlet at 50 fathoms	1	this study	
30 July 1926	Jocassee, Oconee Co., S.C.	1	Sprunt and Chamberlain 1949	*P. lepturus* Charleston Mus. specimen
late July 1971	off Oregon Inlet	1	this study	
3 Aug. 1936	ca. 15 miles off Cape Lookout	1	Pearson et al. 1942	original notes state 12 August 1936
15 Aug. 1982	34° 12′ N, 76° 14′ W 29 miles SSE of Cape Lookout	1	this study, EWI	*P. lepturus*
15 Aug. 1982	34° 6′ N, 76° 17′ W, 36 miles SSE of Cape Lookout	1	this study, EWI	*P. lepturus* (imm.) photo record
18 Aug. 1939	Pea Island, Dare Co.	1	Pearson et al. 1942	specimen lost; see Lee et al. 1981
21 Aug. 1977	40 miles ESE of Oregon Inlet	1	this study	
24 Aug. 1960	120 miles off N.C. coast	1	Chat 24:104-105	
24 Aug. 1976	35 miles SSE of Beaufort Inlet	1	Amer. Birds 31:164	
29 Aug. 1972	70 miles S of Morehead City	1	Amer. Birds 27:40	Chat 37:29 says 28 Aug.
1 Sept. 1976	12 miles SE of Marker 14, Beaufort Inlet	1	this study	
1 Sept. 1981	off Oregon Inlet	1	this study, DSL	*P. aethereus*

TABLE 1, continued

Date	*Location*	*Number*	*Source*	*Remarks*
2 Sept. 1979	off Cape Hatteras	1	Mike Tove	*P. lepturus* photo record
4 Sept. 1976	off Oregon Inlet	1	this study	
6 Sept. 1974	Jordan Reservoir	1	Fussell and Allen-Grimes 1980	inland record
9 Sept. 1980	off Oregon Inlet	2	this study	
11 Sept. 1902	ca. 200 miles off Cape Hatteras	1	Gault 1902	
11 Sept. 1978	off Oregon Inlet	1	Lee and Booth 1979	*P. lepturus* NCSM specimen
mid-Sept. 1979	off Oregon Inlet	1	this study	
16 Oct. 1954	Dillon, Dillon Co., S.C.	1	Harte and McCallum 1959	found alive 60 miles inland, not saved

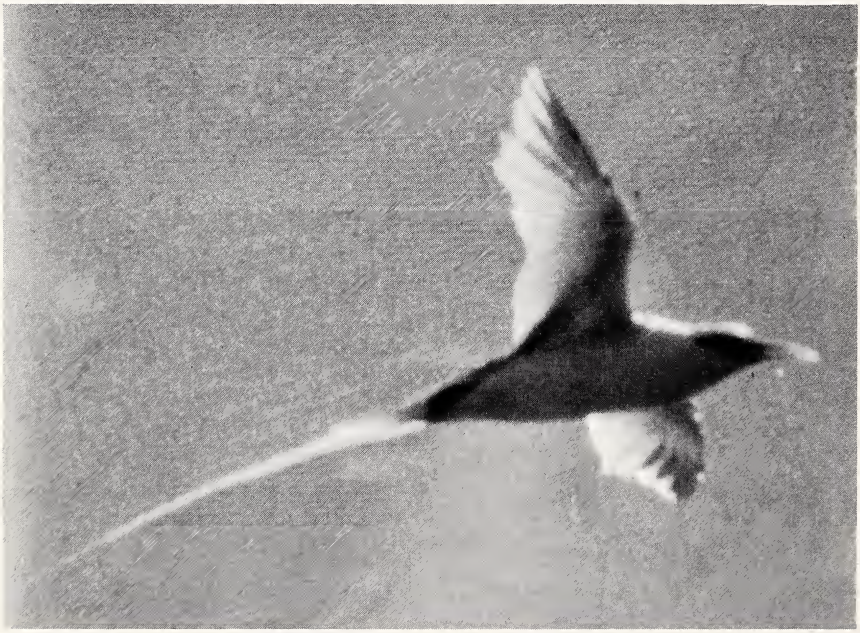

Fig. 4. Adult White-tailed Tropicbird photographed at the "rock pile" off Cape Hatteras, N.C., 2 September 1979. (Photo by Mike Tove)

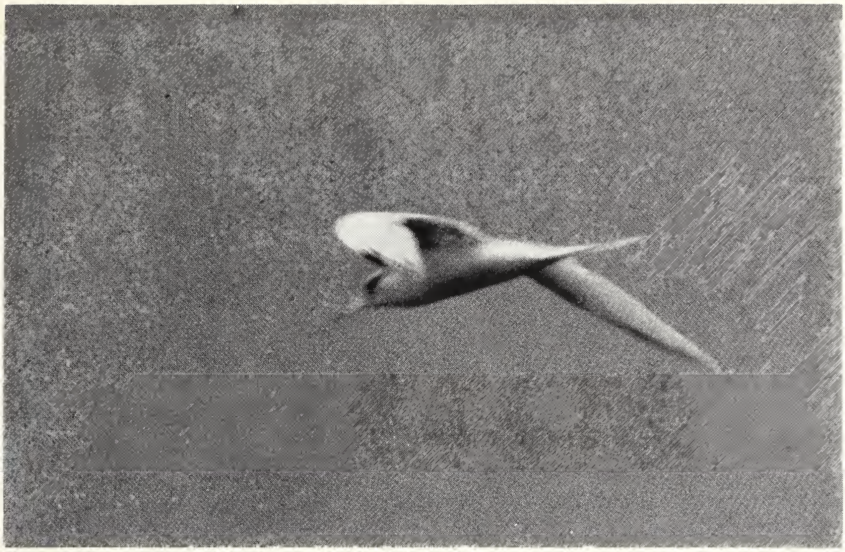

Fig. 5. Immature White-tailed Tropicbird photographed off Cape Lookout, N.C. (34° 6′ N, 76° 17′ W), 15 August 1982. (Photo by E. Wayne Irvin)

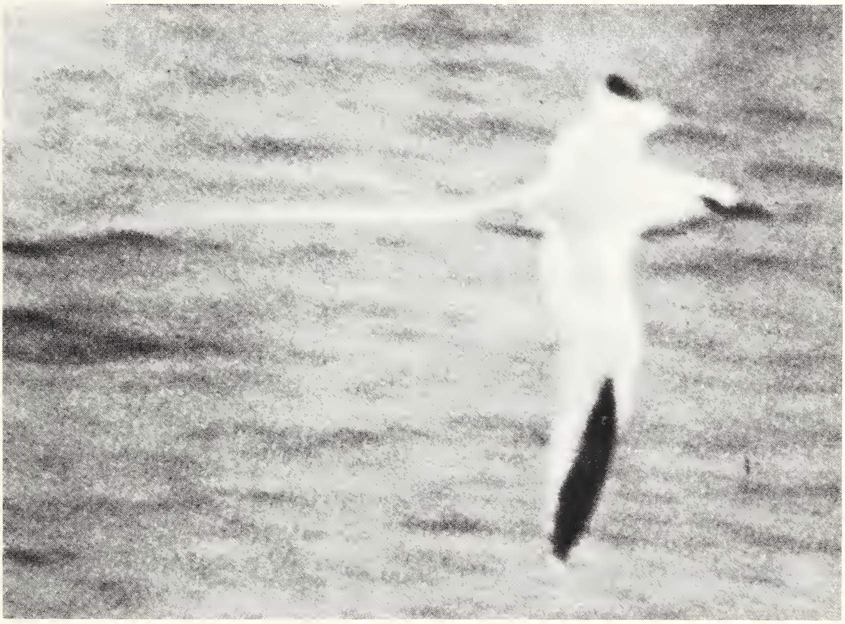

Fig. 6. Adult Red-billed Tropicbird photographed off Cape Lookout, N.C. (30° 11′ N, 70° 8′ W), 6 May 1981. (Photo by E. Wayne Irvin)

TABLE 2: Specimen records of tropicbirds (*Phaethon*) from the Carolinas.

Species	*Date*	*Sex*	*Weight*	*Total length*	*Tail length*	*Wing cord*	*Tarsus*	*Molt*	*Age and reproductive condition*	*Remarks*
P. lepturus Charleston Museum 1526	30 July 1926	F	—	—	—	281 mm	23 mm		adult	captured alive in road; first S.C. record; only specimen
P. lepturus NCSM 6828	11 Sept. 1978	M	374.7 g	590 mm	272 mm	285 mm	30 mm	general molt of body feathers; primaries 1-5 new, 6 in sheath, 7-10 worn	adult, gonad 2 x 4 mm	wingspan 884 mm
P. lepturus NCSM 8002	18 June 1982	F	480 g	768 mm	465 mm	282 mm	29.9 mm	head, neck, and back moderate to heavy; 10th primaries in sheath, rest new	adult, no bursa; largest ovum 3 mm; oviduct convoluted	
P. aethereus NCSM 7182	16 May 1979	F	624.9 g	905 mm	539 mm	307 mm	34 mm	no molt; central tail feather still in sheath	adult, gonad 10 x 2 mm	wingspan 1035 mm
P. aethereus NCSM 7183	16 May 1979	F	607.8 g	480 mm	130 mm	317 mm	35 mm	first primaries new and coming in, 2-10 worn; head and back molting	immature but past first year; gonad 8 x 2 mm	wingspan 1033 mm; no tail streamers

and photograph record of 5 July (or 18 August) 1935, for the description, while lengthy, is not diagnostic and the skull and photograph cannot be located.

DISTRIBUTION AND OCCURRENCE

Excluding storm-driven tropicbirds, all sightings are from far at sea. North of Cape Hatteras all sea records are from the Gulf Stream, but to the south tropicbirds may regularly forage over the extensive shallow waters of the Hatteras Bight. Although information from South Carolina is scant, one record (24 May 1959, from only 18 miles SSE of the Charleston sea buoy) suggests they occur inside the Gulf Stream and over relatively shallow water there as well as in Hatteras Bight. Tropicbirds are high-flying, plunge-diving species adapted to living over nutrient-poor tropical and subtropical waters. Therefore, they seemingly are not as dependent on the edges of oceanic currents and upwelling areas along the continental shelf as are most other pelagic birds of the Carolinas. This is not to say that they will not take advantage of optimum foraging conditions. Indeed, many of our records are from major sport-fishing grounds off Oregon and Hatteras Inlets, where we have concentrated most of our field effort. Nevertheless, the frequency of occurrence in Hatteras Bight and off Cape Lookout is impressive, considering the limited nature of the field work in those areas.

With the exception of one Red-billed Tropicbird collected on 16 May 1979 and one White-tailed Tropicbird photographed on 15 August 1982 (and possibly the 1939 bird beached in North Carolina), all Carolina records for both species are of assumed adults (birds with streamered tails).

The known season of occurrence for the White-tailed Tropicbird in the Carolinas is from 18 June to 11 September. Wingate (1973) reports April to August as the period of maximum occurrence for this species in Bermuda, home of the nesting population closest to the Carolinas. Records for Red-billed Tropicbird occurrence are from 6 May to 1 September. Although there are many sight records for which we are not able to determine the specific identity, there is only one record outside the calendar period covered by positive identifications. This is a 16 October 1954 storm record for a "White-tailed" Tropicbird found alive in Dillon, Dillon County, S.C., approximately 60 miles inland (Harte and McCallum 1959). The specimen, which unfortunately was not saved, was driven inland by Hurricane Hazel. Although seasonal occurrence of tropicbirds in Carolina waters closely parallels our season of maximum field effort, interviews with boat captains give us no reason to suspect late-fall and winter occurrences in our latitudes. Red-billed Tropicbirds have been recorded as late as 9 October in Florida, but the other seven North Atlantic records fall within the mid-June to mid-September period.

Although large storms certainly affect the movements and distribution of most seabirds and are responsible for most, if not all, coastal and inland sightings of *Phaethon*, few of the records available for the Carolinas seem to be of storm-driven individuals. In some instances we are aware of several sightings a few weeks after passage of a storm, but storms are not believed to be a primary cause of displacement because healthy seabirds, including tropicbirds, could return hundreds of miles to favorite feeding areas in a matter of days. Several boat captains have suggested that tropicbirds are most frequently found in Carolina waters during or soon after several days of steady southeasterly winds. While this is without doubt a valid observation, tropicbirds also occur in association with other wind conditions. Furthermore, southeastern winds are a normal occurrence in the summer months.

To provide some indication of frequency of occurrence, Richard Harris, of the Oregon Inlet fishing fleet, kept count of all tropicbirds seen during 100 summer trips off Oregon Inlet in 1982. He personally saw 12 birds, and both species were identified.

With the exception of Florida, tropicbirds have been encountered with more frequency and regularity off the North Carolina coast than off any other state or province in the eastern United States and Canada. This may in part be due to the intensity of field effort in the Hatteras region. In Georgia and South Carolina the continental shelf is so far from land that censusing is difficult. Although tropicbirds may feed regularly in the shallow inshore waters, there probably are no areas of concentration. Georgia has but three tropicbird records, a storm-blown individual over Atlanta (Griffin 1940) and two offshore sightings (Moore 1980). One of the offshore birds was an immature seen on 27 August 1977 about 45 miles ESE of Savannah Beach over water approximately 90 feet deep. The other was an adult (streamered tail) seen in the same vicinity the previous summer by the boat captain, Jim Walthall. Neither offshore sighting was storm related. For many warm-water "summering" seabirds, the Hatteras area represents the northern extent of regular occurrence, or a region of maximum abundance in North America. Cape Hatteras has long been recognized as the breaking point between boreal and tropical elements. Therefore, it is not surprising that there are relatively few reports for either species of *Phaethon* to the north. Additionally, rich feeding areas off the Outer Banks seem to attract "wandering" seabirds on a regular basis. This is supported in part by the great diversity of seabirds documented from the area (Lee and Booth 1979, Lee and Platania 1979).

Because of the unresolved problems of sorting out the distribution, relative abundance, and season of occurrence for the two tropicbirds, we hope that field parties will continue to report details of sightings and that editors will recognize the importance of publishing them.

ACKNOWLEDGMENTS

We thank Steven P. Platania, Mary Kay Clark, Eloise Potter, and John B. Funderburg, all of the North Carolina State Museum, and Ron Mobley, of North Carolina State University, for assistance with the field work. The boat captains of the Oregon Inlet fishing fleet, particularly Harry Baum, Richard Harris, and Allen Foreman, were helpful with all aspects of this study. Charles Manooch, of Natural Marine Fisheries, provided opportunity for survey trips off Beaufort. Al Sanders, Charleston Museum, provided information on the single South Carolina specimen. Mike Tove generously supplied a photograph of the White-tailed Tropicbird. Drawings are by Renaldo G. Kuhler, scientific illustrator, North Carolina State Museum. Portions of the North Carolina State Museum's long-range studies of marine birds and mammals were funded by United States Fish and Wildlife Service Contract 14-16-0009-80-044. This financial assistance is gratefully acknowledged. This is contribution number 1983-1 of the North Carolina Biological Survey.

LITERATURE CITED

Bull, J.L. 1964. Red-billed Tropicbird on Long Island, New York. Auk 81:433-434.

Fussell, J.O., III, and A. Allen-Grimes. 1980. Bird sightings associated with Hurricane David. Chat 44:89-100.

Gault, B.T. 1902. Letter from Cayene, French Guiana. Wilson Bull. 9:140-143.

Griffin, W.W. 1940. Seasonal notes from Atlanta. Oriole 5:9-10.

Harte, J., and A. McCallum. 1959. Tropic-bird, a sight record and a capture. Chat 23:34.

Lee, D.S., and J. Booth Jr. 1979. Seasonal distribution of offshore and pelagic birds in North Carolina waters. Amer. Birds 35:715-721.

Lee, D.S., and S.P. Platania. 1979. Unverified sight records of seabirds in North Carolina waters. Chat 43:79-81.

Lee, D.S., D.B. Wingate, and H.W. Kale II. 1981. Records of tropicbirds in the North Atlantic and upper Gulf of Mexico, with comments on field identification. Amer. Birds 35:887-890.

Manigault, P. 1959. Tropicbird off the South Carolina coast. Chat 25:62.

Moore, T.S. 1980. A record of the White-tailed Tropicbird for Georgia. Oriole 45:39-40.

Pearson, T.G., C.S. Brimley, and H.H. Brimley. 1942. Birds of North Carolina. N.C. Dept. Agric., Raleigh.

Sprunt, A., Jr., and E.B. Chamberlain. 1949. South Carolina Bird Life. Univ. South Carolina Press, Columbia.

Wingate, D.B. 1973. A Checklist and Guide to the Birds of Bermuda. Published by author.

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ATTENTION, PHOTOGRAPHERS!

PHOTOGRAPHY CONTEST—The North Carolina State Museum of Natural History will sponsor a nature photography contest this summer. Persons interested in receiving contest information should write Mary Kay Clark, P.O. Box 27647, N.C. State Museum of Natural History, Raleigh, N.C. 27611.

SLIDES NEEDED—High-quality slides depicting native plants and animals, aspects of their life history, natural habitats, or other facets of North Carolina's natural history are needed by the State Museum. Slides will be used for noncommercial purposes to promote natural history and support environmental education in North Carolina. Donations or loans will be duplicated and originals or a high-quality duplicate will be returned to the contributor. Contributors retain all publication and commercial rights to slides. Photo credits will appear on slide mounts, and appropriate acknowledgements will be made when the slides are used. Those interested in contributing should write or telephone Mary Kay Clark, P.O. Box 27647, N.C. State Museum of Natural History, Raleigh, N.C. 27611, (919) 733-7450.

Backyard Birding

... with Gail T. Whitehurst

Nesting Boxes Add New Dimensions to Backyard Birding

In the spring of 1982, we observed a Carolina Chickadee gathering moss and dry grasses in our backyard. Watching to see where she went, we were somewhat surprised to see her go down inside an iron pipe in the garden. Feeling that she deserved a better nesting place, we scrounged around and came up with a small box that had contained a gift bottle of wine. The front panel was removable. We cut a hole 1¼ inches across in this panel, put it back on the box, and placed the whole thing on top of another iron pipe several feet away from, and in line with, the one the chickadee had chosen. We hardly had time to move away after securing the box before a pair of chickadees discovered it. They spent quite a while going in and out and chattering to each other. The following morning, we were delighted to see that they had "bought" the house and nest building was under way. This was on 11 March.

It was soon apparent that the female was incubating. Spring is a busy time for gardening and birding, and we did not watch the box constantly. We did note on our daily records that the chickadees were always present there. On 21 April, we noted one adult taking a green worm into the box and wondered if the babies had hatched. On 29 April, we could hear the babies in the box when being fed. On 6 May, at noontime, we dashed outside to look for a Scarlet Tanager, which we heard singing. We did not locate the tanager, but did realize that there was quite a commotion near the bird box. When we looked in that direction, we discovered one fledgling already out and perched in a nearby tree. Another one was peeking out the hole and shortly took flight. It was a few minutes later that we saw the adult bird fly to the hole with an insect and entice another fledgling out. We could hear a fourth baby inside, but pressing duties called us back to the house. A check later in the afternoon found the box empty and the adults and young long gone. In subsequent days, we did see the whole family foraging in the trees occasionally.

We waited a few days before taking down the box and opening it. The nest we discovered was very neat and clean. Made of moss and fine grasses, it had a nice "woodsy" odor. We removed the nest, scrubbed the box, let it air out a few days, and then returned it to the same pipe/post. Incidentally, the box interior measures 12¾ inches long; is 3¾ inches wide and deep; the hole is 5¾ inches from the bottom. We give this information because, as you will soon see, it seems to be just the right dimensions for small hole-nesting birds.

On 13 May we noted two male House Wrens looking over the box. Both were singing and, apparently, trying to claim it. Late the same day, we were aware that one male wren had won and the other had moved on. The following day, the male that had taken possession of the territory began taking twigs into the box. He did a lot of singing and very shortly a female had arrived. We were not certain when the nest building began in earnest. At any rate, these birds did nest there. It seemed an eternity before we could hear the nestlings in the box and then forever until they fledged. We were not so fortunate as to be present when the young came out, but knew they were in the box early in the morning of 28 June and gone that afternoon. They remained in the area for several days foraging in the low bushes and hedge near the nest box.

Meanwhile, a few days before the young wrens left the nest, a male was heard singing down the street a ways. He kept moving closer each day, and the singing kept up. The male who had the young in the nest was too busy feeding them to challenge the newcomer. Within a few days, the nesting wrens had moved on, and the new male claimed our backyard for his own. On 7 July, we noted a wren taking the sticks and twigs out of the box—we had been too busy to get around to cleaning it out. Once again a new nest was built and, we presumed, eggs laid. The wait until we heard the young in the box was not quite as long as with the first pair of wrens. Even so, it seemed as though it was a long stay.

On 12 August, we saw a young bird peeking out of the hole. We checked the box several times during the day, and often the baby had its head sticking out, surveying the world outside. It occurred to us that fledging time must be near. The next day at about 10 o'clock in the morning, we saw the baby wren again peering out at his surroundings. Suddenly he gave a push with his toes, lifted his tiny wings and flew quite well. Out of the box and 20 or more feet he flew into a nearby hedge. Other faces appeared and peeked out. Then a little brown head with baby face and wide gape popped out of the hole. He surveyed the situation, apparently measuring the distance to the nearest perch. He made much noise (as the first one had done also) which was answered by the parent birds. He almost flew out, then became "chicken" and turned and went back inside the box. Soon, however, he tried again. After a period of several minutes, he overcame his fear and took off flying. This flier was a bit less sure than the first fledgling, but he made it to a bush within a few feet of the box. We could then see two more babies in the box. They took turns looking out, but neither could bring itself to the point of leaving. The parent birds came and looked into the box several times and chattered at the young. One would come out, look things over, and then return. Then the other would give it a try, give up, and go back into the box. This lasted some 30 minutes or so. We were reminded of children sticking their toes into cold water and jumping back before finally being able to take the plunge into the swimming pool. Finally, the coaxing of parents and siblings already out persuaded the reluctant ones to join them. It took almost an hour to get the four fledglings out. The whole family moved off a few yards into denser hedgerows and kept up a chatter the rest of the day. As I write this, it is the 17th of August. The family of wrens is still around and can be seen and/or heard frequently during the day. As dusk falls, the parent birds coax the young up into the pine trees to roost. We felt most fortunate to be able to watch the fledging of two out of three families that used our box. Isn't it amazing how these tiny birds can fly the first time out?

Two days after the wrens departed the box, we took it down and examined the contents. The nest was full of small sticks and twigs, which we decided to count. Would you believe that there were 438 separate twigs? The inner nest was lined with pine straw (needles to you mountain dwellers) and a few small feathers. Tucked here and there among the twigs was a bit of spider web and what looked like bits of cocoons of moths. The bottom of the nest was damp and musty (had the second pair of birds left some of the first nest in?), and we found a colony of small brown ants (with eggs) had established a home there. We also counted a half dozen sow bugs on the floor of the box. We might mention here that the box had two holes in the bottom through which we had run a heavy coated wire to hold the box in place. The ants and sow bugs must have entered by way of these holes.

We have no exact dates as to when eggs were laid, incubation began, or hatching took place. We did note that the time lapsed between the building of the nests and fledging was 46 days for the first pair and 38 for the second. We wonder if the warmer weather (downright hot, if you will) made any difference in the time it took to bring the nesting to an end. Or did the second brood leave earlier because of the presence of the ants? The second brood did seem a tad smaller, and their gapes were more pronounced.

This was the first time in many years that we have had the pleasure of observing the nesting of small birds here, and it made our summer backyard birding very interesting. Why don't you try it next year—and let us know what happens?—GAIL T. WHITEHURST, 1505 Brooks Avenue, Raleigh, N.C. 27607.

NATURE WALKS

Bird watchers living near Eno River, Umstead, and Crowders Mountain State Parks are accustomed to the nature hikes scheduled throughout the year. Now similar activities are open to the public at several parks in eastern North Carolina. On Saturday, 9 April there will be a bird hike at Goose Creek State Park (phone 923-2191), and on Saturday, 7 May there will be one at Merchants Millpond State Park (phone 357-1191). All hikes begin at 0800 at the respective park offices and last until early afternoon. For further information, write Michael L. Dunn, East District Naturalist, Cliffs of the Neuse State Park, Route 2, Box 50, Seven Springs, N.C. 28578.

CBC Roundtable

... with Louis C. Fink

Mammal Book Published

A Distributional Survey of North Carolina Mammals, by David S. Lee, John B. Funderburg Jr., and Mary Kay Clark, was published by the North Carolina Biological Survey and the State Museum in December 1982. Copies of this 72-page, 8½ x 11-inch booklet are available from the State Museum, P.O. Box 27647, Raleigh, N.C. 27611, for $5 each, postpaid.

Introductory material explains the zoogeography of North Carolina mammals, describes the basic habitats, and reviews the history of mammal studies in the state. A species list that includes the cetaceans is followed by species accounts for all mammals except the whales and porpoises. There are range maps for nearly all the terrestrial mammals. Although no attempt was made to illustrate all species, there are a number of attractive drawings in addition to habitat photographs.

The publication is dedicated to the late Frederick S. Barkalow, a longtime professor of zoology at North Carolina State University, a noted mammalogist, and an outstanding wildlife conservationist.

The Living Bird Quarterly

In 1962 the Laboratory of Ornithology at Cornell University established an annual publication, *The Living Bird.* Over the years this always beautifully illustrated journal has published a number of significant and well-prepared papers, but it never was able to find a large audience outside the loyal supporters of the Laboratory's research programs. Most of the papers were too technical to appeal to the average bird watcher, and many were too light-weight to appeal to professionals and advanced amateurs.

The summer of 1982 marked the beginning of *The Living Bird Quarterly*, which is designed to "inform, excite, and challenge" nonprofessional bird students. The publication should appeal to those who want to learn more about ornithology but are not ready for the major scientific journals. The color photographs and drawings are superbly reproduced. The format and articles are much like those of *Natural History* or *Audubon*, though the first two issues contained only 22 pages each. The quarterly is sent to all members of the Laboratory, and they receive a discount on items purchased at the bookshop. Memberships begin at $25 per year. The address is 159 Sapsucker Woods Road, Ithaca, N.Y. 14850.

Hawkwatching

Anyone who has ever spent an autumn day on Hawk Mountain in Pennsylvania must realize that hawkwatchers are different from other bird watchers. Part of the difference may lie in the fact that the present-day popularity of hawkwatching grew out of a determination to educate a public that seemed to believe the only good hawk was a dead one. Some of the ridges where "sportsmen" used to gather to shoot hawks are today manned by dedicated hawkwatchers who keep detailed migration data. From this effort grew, in 1974, the Hawk Migration Association of North America, which has just published "A Beginner's Guide to Hawkwatching." This 12-page booklet is available from Myriam P. Moore, 101 Columbia Avenue, Lynchburg, Va. 24503, or from Nancy Clayton, HMANA Membership Secretary, 95 Martha's Point Road, Concord, Mass. 01742. Single copies are $1; twenty or more copies in one order, 75¢ each.

HMANA offers daily report forms, with instructions, free to anyone who requests them. The association publishes a newsletter, which goes to all members, and its other publications and art prints are offered to members at special prices. A collection of hawk slides is available for rental to bird clubs and other groups. Annual individual membership is $8.

Newspaper Gleanings

Major John Charteris of the Royal Scots Regiment was assigned to protect 6 million flightless penguins when the British retook the Falkland Islands from Argentina. In Bel Air, Maryland, on the other hand, a high-school student raised a Great Horned Owl until it grew too big. Used to being fed by humans, the owl attacked 15 people and had to be shot. This is an effective reminder that the care of abandoned nestling raptors or sick and injured older birds should be undertaken only by trained workers such as those at the various raptor rehabilitation centers.

Whooping Cranes—at least 77 of them—are back in the Aransas National Wildlife Refuge. Some of the birds carry radios so their migration can be tracked. An adult California Condor was captured near Ventura, Calif., in hopes of successful breeding with another condor in the Los Angeles zoo.

George M. Sutton, 84, who wrote 11 books on birds and illustrated 15 more, has died.

William J. Beecher, ornithologist and director of the Chicago Academy of Sciences, says, "I don't play the bird game. I prefer not to collect them like postage stamps—not caring about them a second after their names are recorded on a list. I often spend a whole day watching just one bird."

(See also articles on pages 13 and 16.)

General Field Notes

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Hooded Merganser Nesting in Wood Duck Boxes in Wake County, N.C.

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The Hooded Merganser (*Lophodytes cucullatus*) is a cavity-nesting species that breeds primarily in the Great Lakes area, but with secondary breeding areas along Pacific coastal states and provinces and the eastern half of the United States (Johnsgard 1975, Bellrose 1976). The latter secondary nesting area includes North Carolina.

For North Carolina, Odum (1947) lists the Hooded Merganser as a "scarce breeder inland" in the state. Pearson et al. (1959) give two breeding records; Hader (1969) gives the Hooded Merganser "rare summer resident" status in Wake County and mentions briefly four of the nests described in this paper. Additional published notes have indicated the presence of adult Hooded Mergansers in spring and summer (Chat 13:34, 34:27, 36:94, 40:87, 41:88-89, and 43:88) as well as an abandoned nest (Chat 38:78) and the presence of young birds (Chat 37:108 and 44:22). These occurrences are summarized in Potter et al. (1980).

The breeding range and nesting requirements of the Hooded Merganser are similar to those of the Wood Duck (*Aix sponsa*), and the merganser occasionally uses nest boxes erected in Wood Duck management projects; Bellrose (1976) provides a summary of published accounts of this occurrence throughout the United States. Hester and Dermid (1973) refer to the occurrence of nests described in this paper, and one other nest in a Wood Duck nest box has been reported in the state (Chat 38:78).

The nests reported here were found in nest boxes on Hester's Pond in east-central Wake County, N.C., near Wendell, approximately 30 miles east of Raleigh. The pond, on a tributary of Little River, comprises 8 acres of open water with an alder thicket (*Alnus serrulata*) near the upper end. The surrounding woodlands are mixed pine-hardwoods. The Wood Duck nest boxes were erected between 1954 and 1966; nesting data reported here were collected between 1961 and 1971 and in 1974 by North Carolina State University Department of Zoology graduate students, including the author. Further descriptions of Hester's Pond and of data collection techniques can be found in Hester (1956) and Robinson (1977).

During the years 1961 through 1971 and 1974, 13 Hooded Merganser nests were initiated on Hester's Pond; Table 1 summarizes information on the recorded nests. All of the

TABLE 1. Summary of Hooded Merganser nesting on Hester's Pond, 1961-1971 and 1974.

Year	*Total number of eggs*[1]	*Number of eggs hatched*	*Incubating hen*[2]
Hooded Merganser nests			
1962	9	8	Hooded Merganser (57564089)[3]
1963	10	0[4]	
	2	0[4]	
1964	5	0[4]	
1971	9	9	Hooded Merganser (no band)
Hooded Merganser-Wood Duck nests			
1962	20 (1+19)[5]	0[4]	
1963	11 (2+9)	0[4]	
	22 (3+19)[6]	17 (1+16)	Wood Duck (57564097)[7]
	25 (3+22)	0[8]	
1964	19 (3+16)	11 (2+9)[9]	Wood Duck (57564098)[7]
1974	15 (2+13)	0[10]	
	16 (13+3)[11]	11 (11+0)	Hooded Merganser (no band)
	7 (6+1)[12]	0[10]	

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[1] For single nests all of the eggs are Hooded Merganser eggs, and as closely as can be determined, all are from one hen; for dump nests the total includes Hooded Merganser and Wood Duck eggs.

[2] Whenever possible during the study on Hester's Pond hens were given U.S. Fish and Wildlife Service leg bands during the third week of incubation; if the hen already wore a band, the number was recorded.

[3] Female Hooded Merganser was banded (57564089) on this nest on Hester's Pond in 1962, and this was her only documented nesting on the pond during the study.

[4] The nest was never incubated.

[5] Hooded Merganser eggs + Wood Duck eggs.

[6] The field notes on this nest report on one day that the nest had 21 Wood Duck eggs, but on the following check 19 were again reported; no reason for the inconsistency is known.

[7] The female Wood Ducks were banded (57564097 and 57564098) on nests on Hester's Pond in 1962. Each nested a total of six times on the pond but had only one documented nest with a mixed Wood Duck-Hooded Merganser clutch.

[8] The nest was deserted by the incubating hen.

nests were reported in February or March, the earliest being 18 February and the latest 28 March. This period corresponds with the peak period of Wood Duck nesting activity on the pond (Robinson 1977).

The Hooded Merganser nests comprised two types, single nests with eggs laid by one Hooded Merganser hen and compound or dump nests containing both Hooded Merganser and Wood Duck eggs. Five nests were single nests; only two of these, each with nine eggs, were incubated. Eight Hooded Merganser/Wood Duck dump nests were found on Hester's Pond, and three of these produced young.

The dump nesting phenomenon has been noted among both waterfowl and other birds. Among gallinaceous birds, the behavior occurs regularly in the Ring-necked Pheasant (*Phasianus colchicus torquatus*) (Bent 1932). Dumping also occurs in some ground-nesting species of ducks, including the Ruddy Duck (*Oxyura jamaicensis*), Redhead (*Aythya americana*), and Canvasback (*A. valisineria*) (Bent 1907, Hochbaum 1944, Weller 1959). Among cavity-nesting species, Wood Duck dump nests have been reported frequently in conjunction with nest-box studies, and over the 11-year period from 1961 through 1971 they represented 61% of all Wood Duck nests on Hester's Pond (Robinson 1977). Hooded Merganser dump nests have been reported by Morse et al. (1969), and Bouvier (1974) reported nesting interactions among Hooded Mergansers, Wood Ducks, and Common Goldeneyes (*Bucephala clangula*) in Quebec.

One incidence of a Hooded Merganser laying in a Wood Duck nest on Hester's Pond was verified in 1974. On 20 February I checked box 41 shortly before 1300, noting 13 Wood Duck eggs and 1 Hooded Merganser egg. The eggs were photographed to show the differences in size and coloration. As soon as I had left the box and rowed to the upper end of the pond, a hen and drake Hooded Merganser landed on the water near box 41 and swam for approximately 3 minutes. At 1310 the hen flew into the box. The drake remained on the water for a few minutes longer before flying off to the south. At 1325 the hen left the box and also flew south. I immediately returned to the nest box and found one additional Hooded Merganser egg, still warm, making a total of 15 eggs in the box. This nest received no more eggs, and it was never incubated; it eventually was destroyed by flickers, starlings, or both.

TABLE 1, footnotes, continued

[9] One young Hooded Merganser and four young Wood Ducks that hatched from this mixed clutch did not leave the box with the female Wood Duck. The hen apparently left the box with one Hooded Merganser and five Wood Duck chicks.

[10] The nest was destroyed by predation.

[11] If, as reported in the literature, female Hooded Mergansers lay one egg every other day, it is probable that more than one Hooded Merganser was laying in the box. Between 6 March and 27 March a total of 13 Hooded Merganser eggs were deposited in the nest. This nest also held one Eastern Screech-Owl (*Otus asio*) egg, which was not included in the total number of eggs; the owl egg was noted in the nest box on 6 March before any of the Hooded Merganser or Wood Duck eggs were laid.

[12] This nest possibly should be considered a single-species (Hooded Merganser) nest because Wood Duck eggs were found in the box at irregular intervals during the nesting season.

The small number of nests reported here prevents generalizations on the nesting behavior of the Hooded Merganser, but these nests do follow the patterns observed in Oregon by Morse et al. (1969) and in other studies summarized in Bellrose (1976). Of the 13 nests on Hester's Pond with which Hooded Mergansers were involved, all but one are known to have been in nest boxes located over water; Morse et al. (1969) found that Hooded Mergansers selected the nest boxes nearest the water. In each of the three incubated dump nests, a hen of the species that appeared to have initiated the nest performed the incubation, and the number of eggs of that species predominated in the nest, observations that agree with Bellrose. Bellrose also states that Wood Duck and Hooded Merganser incubation periods are the same so that eggs of both species in mixed clutches hatch, and two of the three dump nests on Hester's Pond did produce young of both species.

ACKNOWLEDGMENTS

I thank F. Eugene Hester, who directed the research at Hester's Pond during his years at North Carolina State University, for generously giving me access to the field notes for 1961 through 1970 and for making helpful comments on this manuscript.

LITERATURE CITED

Bellrose, F.C. 1976. Ducks, Geese, and Swans of North America. 2nd ed. Stackpole Books, Harrisburg, Pa.

Bent, A.C. 1907. Summer birds of southwestern Saskatchewan. Auk 24:407-430.

Bent, A.C. 1932. Ring-necked Pheasant. Pages 310-322 in Life Histories of North American Gallinaceous Birds, A.C. Bent. U.S. Government Printing Office, Washington, D.C.

Bouvier, J. 1974. Breeding biology of the Hooded Merganser in southwestern Quebec, including interactions with Common Goldeneyes and Wood Ducks. Can. Field Nat. 88(3):323-330.

Hader, R.J. 1969. Species list of birds of Wake County, North Carolina. Chat 33(3):53-71.

Hester, F.E. 1956. The Wood Duck in east central North Carolina. M.S. Thesis, North Carolina State College, Raleigh, N.C.

Hester, F.E., and J. Dermid. 1973. The World of the Wood Duck. J.B. Lippincott Co., New York.

Hochbaum, H.A. 1944. The Canvasback on a Prairie Marsh. The Stackpole Co., Harrisburg, Pa., and Wildl. Mgmt. Inst., Washington, D.C.

Johnsgard, P.A. 1975. Hooded Merganser. Pages 484-492 in Waterfowl of North America, P.A. Johnsgard. Indiana Univ. Press, Bloomington.

Morse, T.E., J.L. Jakabosky, and V.P. McCrow. 1969. Some aspects of the breeding biology of the Hooded Merganser. J. Wildl. Mgmt. 33(3):596-604.

Odum, H.T. 1947. Status of waterfowl in inland North Carolina. Chat 11:42-48.

Pearson, T.G., C.S. Brimley, and H.H. Brimley. 1959. Birds of North Carolina. Revised by D.L. Wray and H.T. Davis. N.C. Dept. of Agric., State Museum Div., Raleigh, N.C.

Potter, E.F., J.F. Parnell, and R.P. Teulings. 1980. Birds of the Carolinas. Univ. of North Carolina Press, Chapel Hill.

Robinson, S.S. 1977. Dump nesting in a Wood Duck population. M.S. Thesis. North Carolina State Univ., Raleigh, N.C.

Weller, M.W. 1959. Parasitic egg laying in the Redhead (*Aythya americana*) and other North American Anatidae. Ecol. Monogr. 29(4):333-365.

Second South Carolina Record of the Smooth-billed Ani

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On 5 December 1981, while driving on the old ricefield banks of Hope Plantation near Jacksonboro, S.C., Mr. Turner and I noticed two grackle-like birds perched in low Chinese Tallow Trees (*Sapium sebiferum*). Their "loose-jointed" behavior and large bills immediately showed them to be anis. As the birds were remarkably tame, we were able to approach within 10 feet before they became alarmed. With binoculars I could easily see that the bills of both birds were smooth, without any trace of grooves. Neither bird foraged while we were observing them, and I could not help but wonder how they survive in an area so far removed from the normal range.

This appears to be the second record of the Smooth-billed Ani (*Crotophaga ani*) for South Carolina. On 29 November 1978, an individual of this species was found dead at Hunting Island State Park, S.C., but the specimen was not saved (Amer. Birds 33:761). A single specimen record for North Carolina is now believed to have been based on an escape (Amer. Birds 33:761).

Groove-billed Ani at Savannah National Wildlife Refuge, S.C.

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Savannah, Georgia 31402

While touring the Savannah National Wildlife Refuge on 27 October 1979, members of the Columbia Audubon Society spotted a Groove-billed Ani hidden in shrubbery along the shoulder of a dike on the South Carolina side of Back River (east channel of the Savannah River). The two visitors who first noticed the bird immediately yelled "Ani!", but the question of whether it was a Smooth-billed or a Groove-billed soon arose. The ani accommodated viewers by flying to a high perch where it could be readily observed, and even though the bird changed perch sites several times during a 40- to 50-minute period, clear views (with binoculars and a 60X telescope at distances of 10 to 50 feet) were obtained by all visitors and refuge personnel. A careful study of the bird's field marks, particularly the distinctive grooves on the beak, indicated to all viewers that the bird was unquestionably a Groove-billed Ani (*Crotophaga sulcirostris*). The bird disappeared into brush along the bank of Back River and eluded people who sought it the following day, but was rediscovered on 29 October at the original site. It returned to the Back River area on 1 December, where it was last seen on 9 December (Amer. Birds 34:264).

Refuge Manager David Goeke, who had been summoned to the scene on 27 October, photographed the ani (see cover and Fig. 1) at 15 feet using a 35 mm Nikon FE camera equipped with a 400 mm lens. Examination of the photographs confirmed the identification of the ani as a Groove-billed; the beak was clearly grooved, not smooth. Also, the beak lacked the distinctly arched and knife-like hump that is characteristic of the Smooth-billed Ani, but exhibited instead the unbroken arc typical of the Groove-billed species. In life, the feathers on the nape appeared silvery-tipped, not bronze-edged as in the Smooth-billed Ani. Photographs of the bird were shown to S.E. Gauthreaux, H.E. LeGrand Jr., and E.B. Chamberlain, who were in accord with its identification as a Groove-billed. This record was reported initially by LeGrand (Amer. Birds 34:151) in his summary of the autumn migration for the Southern Atlantic Coast Region in 1979.

Although the Groove-billed Ani has been observed on a number of occasions in states east of the Mississippi (see Associate Editor's note below), chiefly during the late fall, the present record is the first for South Carolina. Shortly after the initial report of the Back River ani, Richard H. Moore (Amer. Birds 34:766) provided information concerning a second South Carolina record, a dead bird in an advanced stage of decomposition found on the beach at Waite's Island near Cherry Grove on 23 January 1976. Although this specimen was not saved, its beak was clearly that of a Groove-billed Ani.

[NOTE: During the past two decades, the Groove-billed Ani has become an "uncommon but regular winter resident" in the Delta region of Louisiana below New Orleans (G.H. Lowery, 1974, Louisiana Birds, p. 372-373), a regular fall vagrant in the Midwest (Amer. Birds 36:184), and an irregular fall vagrant in other areas of eastern United States. As noted initially by Lowery, there is a general tendency for individuals of this species to move northward in the fall when other migrants are moving south. Although anis were scarce in the New Orleans area in 1967 (Amer. Birds 23:67), they were present in "unprecedented numbers" during the fall and early winter of 1968 (Amer. Birds 23:490). In other areas to the north and east, there were scattered fall records during the 1960s for Florida (Amer. Birds 17:38, 19:31, 21:24), Michigan (Amer. Birds 23:55), Ohio (Amer. Birds 18:43), Tennessee (Amer. Birds 23:67), and Wisconsin (Amer. Birds 23:55, 24:52).

In the 1970s, the number of sightings on the Gulf Coast and in the Midwest increased, and for the first time, Groove-billeds began to appear in Atlantic Coast states north of Florida. The species was again reported from Florida (Amer. Birds 25:47, 29:46), one or more birds made an appearance at six different sites in Alabama (Amer. Birds 33:289), and there were two sightings in Louisiana (Amer. Birds 33:289). In the Midwest, anis were seen in Illinois (Amer. Birds 34:168, 785), Michigan (Amer. Birds 31:181), Missouri (Amer. Birds 27:69, 33:184), Ohio (Amer. Birds 27:69), South Dakota (Amer. Birds 27:631), and Wisconsin (Amer. Birds 30:75, 34:165). Also, and more interestingly, Maryland (C.S. Robbins, and D. Bystrak, 1977, Field List of the Birds of Maryland), South Carolina (Amer. Birds 34:151; Chat, this issue), and Virginia (Amer. Birds 34:160) established their first records of the species.

In the fall and early winter of 1980, a Groove-billed was seen in Ohio (Amer. Birds 35:190), and an unidentified ani observed in Nova Scotia (Amer. Birds 35:803) may have been this species. During fall 1981, Groove-billeds were present in "approximately normal numbers" in coastal Louisiana (Amer. Birds 36:187), and were widespread in the state on the Christmas Bird Count (Amer. Birds 36:303). The *American Birds* Regional Editor for the Midwestern Prairie Region noted (Amer. Birds 36:184) that Groove-billeds "are becoming regular fall vagrants" and listed records from Illinois, Kentucky, and Ohio. There were also sightings in Wisconsin (Amer. Birds 36:181) and Virginia (Amer. Birds 36:178).

Although it seems clear that after the breeding season Groove-billed Anis do move northward and eastward away from the Gulf Coast region, the reason behind this pattern of behavior is unknown. The increase in the number of fall or early-winter sightings is at least in part a reflection of the successful expansion of the breeding range into Louisiana. Skutch

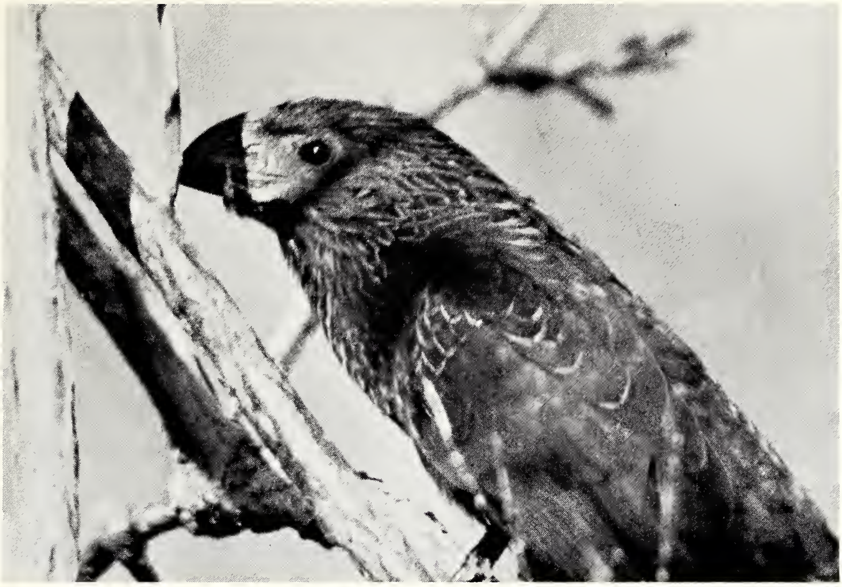

Fig. 1. In spite of the shadow across the tip of the bill, the grooves can be seen well enough to document the identity of the Groove-billed Ani found at Savannah N.W.R. in South Carolina in October 1979. The same bird appears on the front cover of this issue. (Photo by David Goeke)

(Auk 76:281-317) and others have commented that Groove-billed Anis often forage beside grazing livestock, a behavior that is shared with Cattle Egrets. Cattle Egrets, however, leave their breeding areas in North America and winter in the southeastern United States, mainly on the Gulf Coast and in Florida, although the number of birds wintering in the region has apparently declined (Amer. Birds 36:354-357). Competition for a similar feeding niche on the wintering grounds of the Cattle Egret with a concommitant displacement of Groove-billed Anis to other areas may be one factor that has led to a northward and eastward movement of this species in the fall.—JRH]

Audubon-Myrtle Warbler Specimen from North Carolina

GILBERT S. GRANT
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On 29 April 1982 Braswell collected a Yellow-rumped Warbler (*Dendroica coronata*) off Buffalo City Road, 5 miles SE of the town of East Lake, Dare County, N.C. Examination of the specimen (NCSM 8368) showed shared characteristics of both *D. c. auduboni* and *D. c. coronata*. M. Ralph Browning at the United States National Museum of

Natural History examined the specimen and confirmed this. The pale yellow throat and the tail spotting of this specimen are typical of *auduboni* while the other characters (supraloral spot, wing-bar pattern, auricular color, postocular line) are those of typical *coronata* (Hubbard, Auk 86:393-432). Thus, the specimen is an intergrade of the two well-marked subspecies. The specimen is a male (both testes 2 x 2 mm) weighing 12.4 g with moderate fat stores and was undergoing moderate to heavy molt of the head, neck, and body. All remiges were new. The skull was ossified. Having no bursa, the bird is an adult.

Although this is the third report of "Audubon's" Warbler from North Carolina, this represents the first spring record and the first of an intergrade from North Carolina. Previously Betty Davis (Auk 88:924) collected an Audubon's Warbler (NCSM 3938) in Rocky Mount on 28 February 1970, and Michael Schultz (Chat 44:43-44) observed an Audubon's Warbler in Durham during February 1980. Both of these records are of typical *D. c. auduboni.*

We thank M. Ralph Browning for examining the specimen. The field work was partly supported by contract #14-16-0004-81-056 of the United States Fish and Wildlife Service. This is contribution number 1983-2 of the North Carolina Biological Survey.

BRIEFS FOR THE FILES

HARRY E. LeGRAND JR.

(All dates 1982)

> [Because copy for the winter briefs was prepared several months ago, only the species names follow the Sixth Edition of the A.O.U. *Check-list.* The new species order will be used in future issues. Please note that *Red-necked Phalarope* is the new common name for the Northern Phalarope. This change was omitted from the list that appeared in *Chat* 46:72-73.—ED.]

COMMON LOON: One was unusual at Jordan Reservoir, eastern Chatham County, N.C., from 23 June to 1 July (Bill and Margaret Wagner).

HORNED GREBE: Out-of-season individuals, both in breeding plumage, were observed near Four Oaks, N.C., on 7 June by Tom Haggerty and at Atlantic Beach, N.C., on 30 July by John Fussell.

PIED-BILLED GREBE: This species very rarely breeds away from ponds and impoundments in the lower coastal plain. Thus, notable were three active nests discovered on 5 July by Jim McConnell and party in eastern Durham County, N.C., at the new Falls of the Neuse Reservoir. A fourth nest was found on 1 August.

GREATER SHEARWATER: John Fussell and Wayne Irvin found three dead birds along the beach between Atlantic Beach and Beaufort Inlet, N.C., on 19 June.

DOUBLE-CRESTED CORMORANT: Inland reports for the summer season, all in North Carolina, include one near Fayetteville from 9 June to 8 July (Philip Crutchfield), one at Seven Lakes in Moore County on 15 June (Dick Thomas), and a peak summer count at Jordan Reservoir of 55 on 30 June (Bill wagner et al).

ANHINGA: Wayne Irvin saw one soaring near Raleigh, N.C., on 5 June. A pair was again seen during the summer at Jessup's Mill Pond near Fayetteville, N.C., by Philip Crutchfield; nesting is possibly occurring at this site.

MAGNIFICENT FRIGATEBIRD: Adult males were observed on 20 June at Sullivans Island, S.C. (Zach Ralston), on 20 or 21 June at Cape Lookout, N.C. (Steve Spickerman), on 21 June at Bogue Sound, N.C. (John Fussell), and on 28 and 29 June at Beaufort Inlet, N.C. (Larry Crawford). These birds, plus an adult female at Beaufort Inlet on 20 June (Wayne Irvin), were brought to the Carolinas by a tropical storm.

CATTLE EGRET: Rare in the piedmont in summer were single birds noted by Jim McConnell at Beaverdam Reservoir in northern Wake County, N.C., on 16 July and by Harry LeGrand near Sandy Springs, S.C., on 25 July.

GREAT EGRET: Unusually large numbers dispersed inland during the summer, including an excellent 150+ at Jordan Reservoir on 30 July, as reported by Bill Wagner.

SNOWY EGRET: An excellent count for the piedmont was six observed by Jim Mulholland at Beaverdam Reservoir on 23 July.

TRICOLORED HERON: At least five were noted by Bill Wagner and party in eastern Durham County on 31 July. Single birds were also inland near Fayetteville from 29 June to 24 July (Philip Crutchfield) and at Beaverdam Reservoir on 16 July (Jim McConnell).

BLACK-CROWNED NIGHT-HERON: Rare in late summer was one seen by Dan Kaplan and others at Jordan Reservoir on 5 August.

YELLOW-CROWNED NIGHT-HERON: Three were noted by Andy Towle and Tony Shrimpton at Jordan Reservoir on 24 July.

LEAST BITTERN: Merrill Lynch and Lance Peacock found five at the Goose Creek Gameland Impoundment along the Beaufort-Pamlico County, N.C., line on 13 May, and another at the upper portion of the Alligator River in Hyde County, N.C., on 16 June. Bill and Margaret Wagner saw one in marshes along the Neuse River east of Durham on 5 July, and Jim McConnell found a nest there on the same day. At least four young fledged from the nest, which contained five eggs.

AMERICAN BITTERN: One was heard and another was seen at the Goose Creek impoundment along the Beaufort-Pamlico County line on 13 May (Merrill Lynch, Lance Peacock). These could have been either breeders or late migrants. Assumed to be an early migrant was one seen by Philip Crutchfield at Fayetteville on 21 July.

WOOD STORK: This species nested for the second consecutive year on the lower Edisto River in Colleton County, S.C., fide John Cely. Tom Murphy saw approximately 12 nests in 1981 and 22 nests this year. No specific dates were provided. This appears to represent the first unequivocal evidence of breeding in the state, though there have been vague references to nesting and other records of indirect breeding evidence (such as adults carrying sticks).

GLOSSY IBIS: Adults were notable inland near Fayetteville on 15 July (Philip Crutchfield) and at Beaverdam Reservoir on 23 July (Jim Mulholland).

WHITE IBIS: Philip and James Crutchfield saw 15 ibises near Fayetteville on 14 July.

BLUE-WINGED TEAL: Perhaps the first breeding record for inland North Carolina was established at Beaverdam Reservoir on 12 June, when Dick Brame flushed a female with seven young.

COMMON EIDER: A good count for the Carolinas was two females and an immature male seen by Suzanne Oppenheimer and Barbara Amatruda at Cape Hatteras, N.C., on 10 April.

BLACK SCOTER: There were many reports of lingering individuals along Bogue Banks, N.C., between 6 June and 28 July (fide John Fussell), with 15 at Pine Knoll Shores from 6 to 10 June (Larry Crawford). Others in North Carolina waters were three seen in Brunswick County at Lockwood Folly Inlet on 3 July by Tim Playforth and Larry Renfrow, and one seen off Pamlico Point on 31 July by Philip Crutchfield and party.

AMERICAN SWALLOW-TAILED KITE: John Cely found two nests this spring in the Francis Marion National Forest, S.C.; three young were fledged. Truly remarkable were the concentrations reported by Mitch and Phyllis Feller at the Santee River delta, S.C., this summer. They noted 45 to 50 there on 5 July and approximately 100 at the delta on 16 July. Only two were seen on 6 August.

SHARP-SHINNED HAWK: The pair seen by Tom Haggerty in May near Blowing Rock, N.C., was noted again on 2 July. An immature was observed by Jim McConnell at Durham on 3 July.

COOPER'S HAWK: Paul Hamel observed single birds in South Carolina near Cross Anchor, Spartanburg County, on 1 June, and in northern Anderson County on 12 June. [Records of Sharp-shinned and Cooper's Hawks in July, even of adults, should not be taken to indicate local breeding. Both species are regularly seen in the Carolinas after mid-July; most such birds in that month are likely to be early migrants or post-breeding wanderers from other regions. Note that a Sharp-shinned Hawk nest in 1981 near Hillsborough, N.C., was active from 2 to 13 May (Meyer and Mueller, Chat 46:78-80). Thus, adult accipiters in May should not be assumed to be late spring migrants. During my 5 years as Briefs for the Files editor of *Chat*, I have published *most* accipiter records from June, *many* records from July, but relatively few from May. As a result, the list of observations of Sharp-shinned Hawks during the breeding season, 1960 through 1981, in the above reference, is somewhat incomplete. Nevertheless, both species are rare or rather rare in the breeding season in the mountains and piedmont and very rare in the coastal plain. Actual evidence of breeding has been extremely scarce in recent decades.—HEL]

GOLDEN EAGLE: Very rare and unusually late was an immature flushed from a large field near Mayesville, S.C., on 27 May by Evelyn Dabbs. Jim McConnell and party observed an adult in the Unicoi Mountains of western Graham County, N.C., on 18 June.

BALD EAGLE: Adults were noteworthy in North Carolina near Pinebluff on 11 June (Russ Hay, fide Jay Carter), at Holland Lake on Fort Bragg on 1 August (Tommy Hughs), and near Washington on 8 August (Amy Brown, Grace Smith). A few were reported by Bill Wagner and others in late July and early August at Beaverdam and Jordan reservoirs, sites where eagles have been fairly regular in recent years.

NORTHERN HARRIER: Merrill Lynch and Lance Peacock observed two immatures or females south of Lake Phelps, Washington County, N.C., on 10 June and another 5 miles S of nearby Roper on 11 July. As usual, several were seen at Cedar Island, N.C., in June, fide John Fussell.

AMERICAN KESTREL: Jay Carter noted birds at three locations in western Fort Bragg during the summer. At one of these sites he saw a recently fledged bird with two adults on 18 June.

KING RAIL: Rare for the piedmont were two seen and heard in June in eastern Durham County along the Neuse River by Jim McConnell, Dan Kaplan, and others. The species was last detected on 3 August.

SORA: One, probably an early migrant, was seen by Philip and James Crutchfield near Sunset Beach, N.C., on 18 July.

BLACK RAIL: Likely on territory was one heard calling for 5 minutes at Pea Island, N.C., on 30 July by Allen Bryan.

AMERICAN AVOCET: John Fussell observed four to seven birds at Brant Island in Fort Macon State Park, N.C., between 19 June and 24 July.

PIPING PLOVER: Philip and James Crutchfield noted one at Sunset Beach on 18 July. This and several previous summer reports suggest the possibility of breeding there.

UPLAND SANDPIPER: A rare and very early fall migrant was noted by Evelyn Dabbs near Mayesville, S.C., on 2 July.

LESSER YELLOWLEGS: Early fall migrants were three at Cedar Island, N.C., on 27 June (John Fussell) and one in eastern Durham County on 1 July (Jim McConnell).

WILSON'S PHALAROPE: Unusual in June was an individual in winter plumage at Fort Macon State Park on 19 June, as seen by John Fussell. Allen Bryan observed four at Pea Island on 30 July.

RED-NECKED PHALAROPE: Quite rare was one seen in breeding plumage at a spoil pond at Fort Macon State Park on 19 and 21 June by John Fussell and Wayne Irvin.

SHORT-BILLED DOWITCHER: Fairly early fall migrants, noted by Jim McConnell, were four at Beaverdam Reservoir on 11 July and one at the Durham sewer beds on 15 July.

LEAST SANDPIPER: John Fussell saw one at Fort Macon State Park on 24 June, an early date for a presumed fall transient.

WHITE-RUMPED SANDPIPER: This species is regular as a spring migrant along the coast into mid-June; however, two seen by John Fussell at Fort Macon State Park on 19 and 24 June were somewhat unusual.

STILT SANDPIPER: Uncommon was one noted by Bill and Margaret Wagner at the Falls of the Neuse Reservoir lakebed on 18 July.

PARASITIC JAEGER: Three were seen migrating northeastward at Atlantic Beach, N.C., on 13 June by John Fussell and Wayne Irvin.

RING-BILLED GULL: Notable in midsummer was an individual found by Allen Bryan at Jordan Reservoir on 1 July. One (the same bird?) was also seen there on 25 and 28 July by Bill and Margaret Wagner.

BONAPARTE'S GULL: John Fussell saw two immatures from 19 June to the end of July at Brant Island in Fort Macon State Park.

GULL-BILLED TERN: Rather unusual were as many as 10 seen feeding over soybean and corn fields near Swanquarter, N.C., on 11 August by Merrill Lynch and Lance Peacock.

COMMON TERN: One was noted at Fayetteville on 29 June (Philip Crutchfield) and three were seen east of Durham on 9 August (Bill and Margaret Wagner).

LEAST TERN: Merrill Lynch and Lance Peacock observed several at a spoil area of the Texas Gulf Sulphur plant in Beaufort County, N.C., on 28 June.

CASPIAN TERN: Rare inland in midsummer were singles at Fayetteville on 22 June (Philip Crutchfield) and at Jordan Reservoir on 17 July (Dan Kaplan, Bill Wagner, et al.).

BLACK TERN: John Fussell and others had five records in the Beaufort Inlet, N.C., area from 16 June to 6 July.

NORTHERN SAW-WHET OWL: Strongly suggestive of local breeding was an immature seen during the daytime by John Cely on 21 July at Craggy Gardens, Buncombe County, N.C. The owl was roosting in a beech-birch thicket at an elevation of 4500 feet.

WHIP-POOR-WILL: Lance Peacock and Merrill Lynch noted four birds north of Grantsboro, Pamlico County, N.C., on 13 May and on 28 June; and they heard one and saw two at Peters Creek canal, 8 miles S of Manns Harbor, N.C., on 10 June. At an established site, John Fussell heard one calling 2 miles N of North River community in Carteret County, N.C., on 6 June. Farther inland in the coastal plain, several were noted all summer in the Fayetteville area (Philip Crutchfield) and at least three were heard in western Gates County, N.C., on 25-26 June (Karen Masson).

GRAY KINGBIRD: One was north of its breeding range at Topsail Island, N.C., as seen by Gail Whitehurst on 7 June.

WILLOW FLYCATCHER: Ramona Snavely again noted this species during the summer in the Winston-Salem, N.C., area. She saw two birds carrying food in June along Salem Creek, but a nest was not found. Willow Flycatchers probably nest in most of the counties in the northwestern piedmont of North Carolina; exploratory field work on this species is badly needed.

ALDER FLYCATCHER: Bill and Margaret Wagner observed a singing migrant along the Neuse River east of Durham on 16 August.

HORNED LARK: Jay Carter reports that larks apparently bred in Fort Bragg near Ashley Heights, Hoke County. One was seen by Karen Masson on 25 June near the US 258 bridge over the Roanoke River in Halifax County, N.C.

TREE SWALLOW: An excellent count for so early in the fall migration was 1000+ seen by Merrill Lynch and Lance Peacock in the Lake Phelps, N.C., area on 10 July.

BANK SWALLOW: This species breeds conclusively in North Carolina only in Wilkes County, but two records this summer suggest the possibility of nesting. John Fussell and party had two on 6 June and one on 20 June at the Cedar Island ferry terminal. Barn and Rough-winged Swallows nested in holes in old ships there and possibly the Banks did also. Merrill Lynch saw at least five flying around a bridge over the Hyco River in northern Person County on 27 June. He reported that the birds did not seem to be migrating; exposed banks are present along the shore of Hyco Reservoir. Presumed early migrants were two at Jordan Reservoir on 8 July (Jim McConnell) and two at Emerald Isle, N.C., on 11 July (Larry Crawford, John Fussell, Bob Holmes).

CLIFF SWALLOW: Karen Masson saw five pairs feeding young under a bridge across the Hyco River near McGehees Mill, Person County, N.C., on 27 June. Nearby, Merrill Lynch saw three pairs at their nests under a bridge on Hyco Reservoir on 11 July. Allen Bryan saw eight birds and three nests at Jordan Reservoir on 1 July. In the mountains, three nests were found at Fontana Dam, N.C., on 17 June by Owen and Jim McConnell. Rather rare migrants near the coast were two at Oriental, N.C., on 14 July (Larry Crawford) and one at Emerald Isle on 25 July (John Fussell et al.).

FISH CROW: Jim McConnell noted the species nearly every day this summer in a part of Durham, with a peak of four on 13 June. One bird was seen carrying a stick in its bill.

HOUSE WREN: Out of range and in unusual habitat was a singing wren in Pond Pine pocosin in Northwest Pocosin, Pamlico County, N.C., on 14 May (Merrill Lynch, Lance Peacock). These observers saw another singing bird in burned Pond Pine pocosin 6 miles N of Stumpy Point, Dare County, N.C., on 10 June. Henry Rankin and Philip Crutchfield had a male in Fayetteville from late June to mid-July, and Harry LeGrand heard one singing on territory in a residential section of Newberry, S.C., on 17 July.

LOGGERHEAD SHRIKE: This species has become alarmingly scarce during the breeding seson in the Carolinas, especially in the piedmont of North Carolina. Merrill Lynch drove 106.5 miles in Person County in July, much in prime habitat, without seeing any. Near Raleigh, Jim Mulholland saw only one along a 12-mile route where shrikes were formerly common.

SOLITARY VIREO: Perhaps the first breeding-season record for this vireo in Person County was a singing bird near the Hyco River on 27 June (Merrill Lynch). Jay Carter heard one singing in western Fort Bragg, Hoke County, on 16 June.

BLACK-AND-WHITE WARBLER: Merrill Lynch and Lance Peacock noted a singing male on 14 May on Upper Broad Creek on the Pamlico-Craven County line, N.C. The bird was probably on territory, but its being a late migrant cannot be ruled out.

SWAINSON'S WARBLER: Tom Haggerty found a singing bird along Elk Creek, Wilkes County, N.C., about 2 miles N of Darby on 1 July; he saw the bird the next day. The site was from 1300 to 1600 feet in elevation, with dense rhododendron and Mountain Laurel on a steep slope. Several singing birds were found by Travis Knowles on the Bat Cave Preserve in western Rutherford County, N.C., during June and July. Extensive field work in eastern North Carolina by Merrill Lynch and Lance Peacock revealed that the species was widespread though uncommon during the breeding season in all four counties of their study area—Dare, Hyde, Washington, and Pamlico.

WORM-EATING WARBLER: Merrill Lynch and Lance Peacock noted three singing birds in Pamlico County on 14 May that were likely on territory. They also had a remarkable 45 birds in Hyde, Dare, and Washington Counties during the summer.

BLUE-WINGED WARBLER: An early migrant was seen by Tony and Nikki Shrimpton at Jordan Reservoir on 27 July.

BLACK-THROATED GREEN WARBLER: This species was quite common in parts of eastern North Carolina this spring and summer, according to Merrill Lynch and Lance Peacock. They tallied 101+ singing birds in Dare, Hyde, Pamlico, and Washington Counties; the birds were most common in Atlantic White Cedar swamps.

CERULEAN WARBLER: A new breeding-season station was noted by Travis Knowles, who found two singing males in June and July at Bat Cave Preserve in extreme western Rutherford County.

KENTUCKY WARBLER: Merrill Lynch and Lance Peacock were unable to find this species during the summer in Dare, Hyde, or Washington Counties. However, they noted singing birds in Pamlico County near Kershaw on 28 June, Merritt on 13 July, and Nelms on 13 July.

CANADA WARBLER: Jim McConnell noted a pair at the rather low elevation of 3120 feet during June along the Santeetlah Creek in Graham County, N.C.

AMERICAN REDSTART: Somewhat to the east of the breeding range was an individual singing in Gull Rock Gameland, southern Hyde County, N.C., on 17 June (Merrill Lynch, Lance Peacock).

SCARLET TANAGER: Singing males were slightly outside the usual breeding range at Fort Jackson near Columbia, S.C. (John Cely), and near Arapahoe, N.C. (Merrill Lynch, Lance Peacock), both noted on 13 July.

PAINTED BUNTING: This species nests almost solely in North Carolina within several miles of the ocean. Therefore, a male singing regularly all during July and to 4 August at Becker's Sand and Gravel Company near Fayetteville was most unusual (Philip Crutchfield).

DICKCISSEL: Harry LeGrand found three singing males and a female near Townville, S.C., on 5 June, and he saw another singing male a mile away on several dates in June. The field where the first four birds occurred was mowed in July, and no birds were present after the mowing.

HOUSE FINCH: Jere Eggleston had a pair at his feeder in Columbia, S.C., in late April and May. During June seven birds (a family group) were at the feeder. At Fayetteville, Henry Rankin saw as many as 15 birds, including immatures, at his feeder during the summer.

PINE SISKIN: Very late lingering siskins were at feeders at Raleigh until 5 June (Wayne Irvin) and near Southern Pines, N.C., until 20 June (Libba Watson).

RED CROSSBILL: A few birds were reported in July in the North Carolina mountains at Richland Balsam and at Highlands (Allen Bryan, Harry LeGrand).

GRASSHOPPER SPARROW: Philip Crutchfield and M.E. Whitfield noted three in Fort Bragg, western Hoke County, on 3 August.

SONG SPARROW: John Fussell found the species at Cedar Island, N.C., during the summer, in numbers similar to those of last year. This is the southernmost known site of breeding for the Atlantic race.

[NOTE: LeGrand's current address is 331 Yadkin Drive, Raleigh, N.C. 27609.—EFP]

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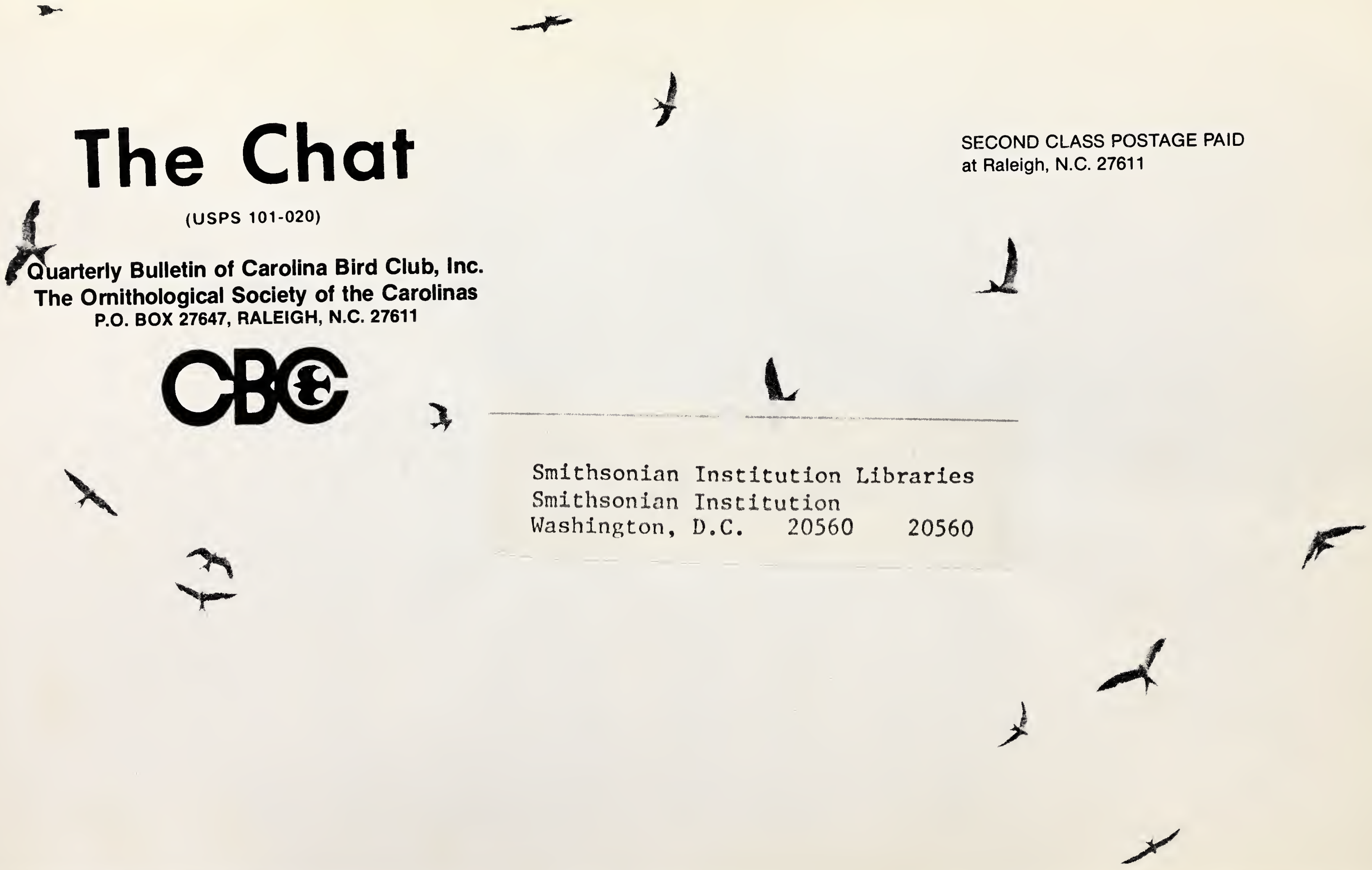

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OUR COVER—"Lady of the Waters" Audubon called this graceful heron, here captured on film by John Trott. Although this species is now officially known as the Tricolored Heron, many bird watchers still use its old name, Louisiana Heron.

Breeding Birds of the Unicoi Mountains

JIM McCONNELL AND OWEN McCONNELL

During the last half of June in the years 1944 through 1946, Ganier and Clebsch (1944, 1946) studied the breeding-bird population of the Unicoi Mountain chain, which follows the North Carolina (Graham County) – Tennessee (Monroe County) line. They explored the 10 miles of ridge from Bob Bald on the north to Grassy Top on the south, at elevations ranging from 4,000 to 5,472 feet. They were the first ornithologists to work the area, and no further surveys of the birds of this area have been published, though a few random observations have been reported in *The Migrant.* The present paper records the results of censuses made in 1981 and 1982 in the same area studied by Ganier and Clebsch, and at the same time of year. Changes that occurred during the intervening 35 years are noted.[1]

HABITAT

A rather unusual habitat is created by the numerous grass balds and clearings found close together on the gently rounded or almost level summits, ridges, and gaps of the Unicoi Mountains. These meadows lie in an area of approximately 5 x 2 air miles and are islands in a sea of forested mountains. East of the divide is the Nantahala National Forest, and west is the Cherokee National Forest. Another distinctive feature is the high elevation—up to 5,560 feet—of these balds at such a southern latitude. Farther south, the Appalachians are significantly lower.

Habitat, 1944-1946: Four long-existing balds were surveyed by Ganier and Clebsch (1944, 1946): Stratton Meadow (4,320 feet), Bob Bald (5,262 feet), Whigg Meadow (4,960 feet), and Haw Knob (5,472 feet). Stratton Meadow, several acres in a gap, was the site of Ganier's camp. Then, as now, it was accessible by Forest Service roads. All the other balds were, and still are, reached only by foot trail, or, in some cases, by very rough jeep trails (old logging roads). Bob Bald is an elongated meadow of 5 or 6 acres. It lies 3 air miles NE of Stratton Meadow. Whigg Meadow, 2 air miles S of Stratton Meadow, has 7 or 8 acres of quite open meadow, affording an outstanding view of the mountain ranges westward. One-half mile E of Whigg Meadow is Haw Knob, then about 1 or 2 acres of meadow, making it the smallest bald but highest summit along the ridge that Ganier explored.

After the Cherokees were removed in 1838, early white settlers grazed cattle, sheep, and horses on the balds and built cabins there. Cattle grazing was continuing there at the time of Ganier's study. The cattle kept the thick mountain grasses, wild strawberries, and other low growth neatly cropped. Ganier and Clebsch noted that the Veery, Black-throated Blue Warbler, and Chestnut-sided Warbler (three of the four most abundant species) often located their nests a few feet above ground in the cattle-cropped sprouts of beech and birch trees growing in thickets along the edges of the balds. In the 1944-1946 period, the Tennessee side of the Unicoi crest was young second-growth forest consisting of pines, hemlock, and hardwoods (between 1905 and 1930 Babcock Lumber Co. had cut everything of value on the Tellico River and its tributaries). The forest adjacent to the crest on the North Carolina side was still virgin. Ganier and Clebsch (1944) wrote, "A virgin stand of massive hemlocks near Stratton Meadow, some five feet in diameter, may be the finest remaining grove of this beautiful tree left in the southern mountains."

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[1] Members of Tennessee Ornithological Society conducted a breeding-bird foray in Monroe County, Tenn., 23-26 May 1980. They covered Stratton Meadows, Haw Knob, Whigg Meadow, and some other places mentioned in the present study. Unfortunately, the report has not yet been published and results are not available for comparison.

Habitat, 1981-1982: The virgin forest was soon destined for the woodman's axe. Now second-growth forest of hemlock and deciduous trees cover both slopes. However, the trees have matured to the point where they are being cut again, but more selectively. About 3 years ago the U.S. Forest Service created several "balds" as part of a plan to improve the habitat for wildlife. They clear-cut areas of about 10 acres each on Huckleberry Knob, which at 5,560 feet is the highest point in Graham County, and on Oak Knob (5,440 feet), about a half mile S of Huckleberry. The charred stumps and trunks of the Northern Red Oak (*Quercus rubra*) now lie among the tall grasses, wildflowers, and thornless Blackberries creating a new type of bald. A similar field of about 3 or 4 acres was cleared adjacent to the old Bob Bald, and another larger field with some dead trees left standing was made northeast of Stratton Meadow. About a mile S of Oak Knob is the largest (about 15 acres) and one of the oldest balds in the area—Hooper Bald. Because Hooper Bald and all the newer clearings mentioned above are located in North Carolina close to the main divide studied by Ganier and Clebsch (1944, 1946) and are at high elevations, we decided to include them in the area we studied.

One of the most important changes is in the habitat of the older balds. Cattle no longer keep the balds neatly cropped like lawns. Grasses are a foot or more high by late June and tall Buttercups (*Ranunculus acris*), Common Cinquefoil (*Potentilla simplex*), and Bluets (*Houstonia caerulea*) bloom next to the ripe wild Strawberries (*Fragaria virginiana* . Constable's Blueberries (*Vaccinium constablaei*), Flame Azalea (*Rhododendron calendulaceum*), Mountain Laurel (*Kalmia latifolia*), hawthorns (*Crataegus* sp.), and Allegheny Serviceberry (*Amelanchier arborea*) not only have increased around the borders but also are intruding into the meadows. The beech and birch sprouts, once trimmed by cattle, are becoming trees and encroaching on the open spaces. Ganier saw no Fraser Firs (*Abies fraseri*), but now small stands up to 30 feet high are found on Bob Bald, Haw Knob, and Hooper Bald. The balds have changed from close-cropped pastures into lush mountain meadows interspersed with patches of shrubs and small trees.

METHODS

From 14 to 20 June 1981 and 15 to 20 June 1982 we hiked the trails along the Unicoi Mountain crest from Bob Bald to within a mile of Grassy Top and from Huckleberry Knob to Hooper Bald. (Ganier and Clebsch's studies were conducted from 18 to 25 June 1944, 15 to 23 June 1945, and 16 to 26 June 1946.) We visited all of the long-standing balds and newer clearings mentioned in the habitat section. Every bird clearly identified by sight or sound was recorded along with the date and place of sighting.

Although we found at the older balds a few rare species that were not seen at the more recent clearings, we observed no species at the newer balds that were not also seen at the older ones. Therefore, it seemed appropriate to combine the data for statistical purposes. We summed the total number of individuals of each species both for our data and for that of Ganier and Clebsch. Because total observation times for the two studies are unequal, we compare ranks rather than numbers of individuals. By rank-ordering the species on each list from most to least frequent, comparisons can be made of the relative frequency of each species.

A note of caution: misinterpretations may result from taking the ranks too literally. Large differences in rank are probably reliable, but differences in frequency between species close in rank may not be significant. This is especially true for the rarer species, where ties tended to occur, and an individual or two might change a rank. (In the case of ties ranks were arbitrarily assigned.) Therefore, in the interpretation of the results, we will ignore small changes in rank and not regard ranking as meaningful for the least frequent species.

RESULTS AND DISCUSSION

The total species observed in the two studies are almost the same: Ganier and Clebsch's (1946) total was 44 species, ours was 45. Our list contains 11 species not observed in the earlier study, whereas Ganier and Clebsch (1946) recorded 10 species not seen by us. Table 1 presents the species observed in both studies in phylogenetic order followed by their comparative rankings. A zero in either column indicates the species was not recorded during the study period.

The 10 species (including their ranks) that were observed by Ganier and Clebsch (1946) but not by us are: Wood Thrush (6), Eastern Wood-Pewee (13), Yellow-bellied Sapsucker (26), Brown Thrasher (27), Black-throated Green Warbler (31), Common Raven (35), Barred Owl (36), Louisiana Waterthrush (41), Hooded Warbler (43), and Brown-headed Cowbird (44). All these birds except the Yellow-bellied Sapsucker and Common Raven are found regularly in the area at lower elevations. We might have missed some of these species because we did not work as extensively as did Ganier and Clebsch along the lower elevation limit. Only one Hooded Warbler and three Louisiana Waterthrushes were seen by Ganier and Clebsch, all at about 4,200 feet. The Black-throated Green Warbler was not seen by Ganier and Clebsch until their last survey, when they found a few in the "tops of the oldest hemlock stands," which have now been cut. The lone Brown-headed Cowbird was a juvenile that flew across Whigg Meadow where cattle were grazing. The absence of cattle probably accounts for the disappearance of this species around the balds. Barred Owls were heard only at Stratton Meadow where the ornithologists camped. We did not camp overnight or make a special effort to hear owls. Brown Thrashers were scarce during the 1940s but were found by Ganier and Clebsch at Stratton Meadow and Whigg Meadow. We covered these meadows more than once without finding any Brown Thrashers, and this species was uncommon even at lower elevations in the area.

Most astonishing is our failure to record a single Wood Thrush, whereas Ganier and Clebsch's (1946) count of 90 individuals placed this bird as the sixth most common species. Their only remark is about its loud and frequent song. We found the Veery to be common down to 4,000 feet. Has the Veery extended its range downward, causing the Wood Thrush to retreat to lower elevations? Also, a striking difference existed between the 35 Eastern Wood-Pewees they observed and our zero count. They noted that pewees were in open woods, being most abundant around Stratton Gap. This gap is considerably less open now than it was in the 1940s, but this change alone probably cannot explain such a large difference.

Ganier and Clebsch's (1946) finding of 12 Yellow-bellied Sapsuckers extended the known breeding range of this species southwestward from the Great Smoky Mountains.

TABLE 1. Comparative rankings of breeding birds found in the Unicoi Mountains by Ganier and Clebsch (1944-1946) and by McConnell and McConnell (1981-1982). Species are listed in phylogenetic order, with those that ranked in the top five in either study printed in boldface type. A zero ranking means that the bird was not found during the study period, though the species may be present in the area in small numbers or at slightly lower elevations than those covered by the two studies.

Species	*1981-1982*	*1944-1946*
Turkey Vulture	33	29
Sharp-shinned Hawk	44	0
Broad-winged Hawk	18	0
Red-tailed Hawk	39	37
Golden Eagle	45	0
Ruffed Grouse	20	30
Wild Turkey	40	40
Northern Bobwhite	12	39
Mourning Dove	43	0
Barred Owl	0	36
Chimney Swift	**5**	**19**
Ruby-throated Hummingbird	19	16
Yellow-bellied Sapsucker	0	26
Downy Woodpecker	22	23
Hairy Woodpecker	26	24
Northern Flicker	41	25
Pileated Woodpecker	29	33
Eastern Wood-Pewee	0	13
Least Flycatcher	27	0
Great Crested Flycatcher	35	42
Barn Swallow	42	0
Blue Jay	23	15
American Crow	14	0
Common Raven	0	35
Carolina Chickadee	13	20
Tufted Titmouse	37	14
Red-breasted Nuthatch	36	34
White-breasted Nuthatch	24	12
House Wren	34	0
Winter Wren	21	38
Veery	**3**	**2**
Wood Thrush	0	6
American Robin	25	8
Gray Catbird	10	7
Brown Thrasher	0	27
Cedar Waxwing	16	18
Solitary Vireo	**6**	**5**
Red-eyed Vireo	17	0

TABLE 1, continued

Species	*1981-1982*	*1944-1946*
Northern Parula	32	0
Chestnut-sided Warbler	**2**	**4**
Black-throated Blue Warbler	**8**	**3**
Black-throated Green Warbler	0	31
Blackburnian Warbler	30	28
Black-and-white Warbler	38	22
Ovenbird	11	10
Louisiana Waterthrush	0	41
Hooded Warbler	0	43
Canada Warbler	**4**	**17**
Scarlet Tanager	28	32
Rose-breasted Grosbeak	31	11
Indigo Bunting	9	0
Rufous-sided Towhee	7	9
Dark-eyed Junco	**1**	**1**
Brown-headed Cowbird	0	44
American Goldfinch	15	21
TOTAL SPECIES	45	44

They note that sapsuckers were nesting in dead chestnut trees. Is the apparent decline of the sapsucker as a breeding species in the Unicoi Mountains related to a decrease in suitable nesting sites? Ganier (1954) described a southern Appalachian race of the Yellow-bellied Sapsucker based in part on a specimen from the Unicoi Mountains. According to Peterson (1980), the status of the Yellow-bellied Sapsucker in the southern portion of the Appalachians is questionable, but Charles Nicholson (pers. comm.) says the species has been reported in the Unicois during the past few years in the breeding season.

The only other species seen by Ganier and Clebsch (1946) but not by us was the Common Raven. We saw four ravens at the Rock Quarry near Fontana Dam (about 12 miles from Bob Bald) on 17 June 1982. Also, four ravens were at Big Fat Gap in the Unicoi Mountains, only 4 miles from the survey area, on 17 August 1981. Therefore, ravens probably still breed nearby.

Of the birds we observed that were not seen earlier by Ganier and Clebsch (1946), the most remarkable species for abundance is the Indigo Bunting, our ninth most common bird. It has invaded all of the high grassy balds in the survey area. Apparently mated pairs were found on the highest summits: Huckleberry Knob (5,560 feet) and Haw Knob (5,472 feet). The sighting of 5 females along with 13 singing males strongly suggests breeding at these high altitudes. Except for Simpson (1977), previous records of Indigo Buntings above 5,000 feet during the breeding season consist of solitary males with no evidence of females, nests, or young.

Another interesting addition to the avifauna of the Unicoi Mountains were two male House Wrens singing at separate locations. One was present on 17 June 1981 at the upper end of Whigg Meadow (4,960 feet) where Mountain Laurel grew along the meadow border and some split-rail fences had been erected. It responded to "pishing" calls with territorial investigative and alarm behaviors. The second House Wren was seen on 19 June 1981 at Bob Bald (5,341 feet) in the 3-acre clearing the Forest Service had recently made adjacent to the original bald. The male sang repeatedly from various perches around this clearing, which still had the trunks of the fallen Northern Red Oaks strewn about. Charles Nicholson (pers. comm.) reports that the House Wren was also found at high elevations during the 1980 TOS foray in Monroe County, Tenn. In recent years the House Wren has been extending its range southward (Stupka 1963). Although singing males have previously been observed during the summer at elevations from 4,500 to 5,300 feet in Virginia on Whitetop Mountain and on Mount Rogers (Stevenson and Stupka 1948), Stupka (1963) mentions no high-elevation records for the Great Smoky Mountains. Potter et al. (1980) state that in the North Carolina mountains the House Wren nests throughout the lower and middle elevations. Hence, the presence of these House Wrens may represent an upward extension of the breeding range in North Carolina.

Another newcomer not seen by Ganier and Clebsch (1946) was the Least Flycatcher. A pair was seen on successive years (17 June 1981 and 18 June 1982) along a tree-bordered creek at Whigg Meadow. The continuously repeated *che-bek* call was also heard. This elevation (4,960 feet) exceeds the usual breeding range of 3,000 to 4,500 feet cited in Potter et al. (1980).

Other species sighted by us but not by Ganier and Clebsch (1946) were Golden Eagle, Broad-winged Hawk, Sharp-shinned Hawk, American Crow, Red-eyed Vireo, Northern Parula, Barn Swallow, and Mourning Dove. The Golden Eagle was an adult with some white at the base of the primary flight feathers but not at the base of the tail. Seen from Whigg Meadow at 1215 EST on 18 June 1982, the eagle first circled above Little Haw Knob with a Broad-winged Hawk that was less than half its size. It then glided southwestward parallel to the meadow, coming within 450 feet of us. Jon E. DeVore (1973) saw an adult Golden Eagle from the same spot on 14 August 1971 and from a spot approximately 10 miles W in August 1968. Stupka (1963) lists five June records of the Golden Eagle between 1924 and 1961 in the nearby Great Smoky Mountains National Park.

Raptors appear to have increased in the high Unicois. Ganier and Clebsch (1946) observed only the Red-tailed Hawk, which was rare, whereas we found four species: Golden Eagle, Red-tailed Hawk, Broad-winged Hawk, and Sharp-shinned Hawk. The Broad-winged Hawk was fairly common. Because these hawks are known to range throughout all elevations, their absence during Ganier and Clebsch's census must be accounted for more than their presence now. The comeback is possibly related to the protection of hawks by law, education of hunters about their beneficial effects, habitat improvement, and a greater abundance of prey species.

Ganier and Clebsch (1946) failed to find the American Crow above 3,500 feet in the Unicois. We saw American Crows at Bob Bald, Stratton Meadow, Whigg Meadow, Hooper Bald, and Huckleberry Knob (5,560 feet). Stupka gives 3,000 feet as the usual upper limit for breeding in the Great Smoky Mountains. We have no evidence of crows breeding at these higher elevations, but their presence there in the breeding season is an interesting change.

Our sightings of Red-eyed Vireos and Northern Parulas may indicate upward extensions of their breeding ranges in the Unicois during the last 35 years. We saw six Red-eyed Vireos in the 4,500- to 4,800-foot range and Northern Parulas at 4,000 to 4,500 feet along forested ridges. Other summer records at approximately this elevation exist for North Carolina outside the Unicoi Mountains (Stevenson and Stupka 1948).

The Barn Swallow was seen at Whigg Meadow. Barn Swallows have nested as high as 4,888 feet at Cataloochee Ranch (Stupka 1963), but it is likely that the swallow we saw was nesting at a lower site and merely feeding over the meadow. The Mourning Dove was flushed twice, the interval being about 4 hours, from the same tree in a dense woods on the side of John's Knob (4,300 feet). The occurrence was most likely accidental.

In addition to changes in species, some interesting differences in the relative abundance of species were noted. Species that significantly increased were Northern Bobwhite, moving from rank 39 to 12; Canada Warbler, from rank 17 to 4; and Winter Wren, from rank 38 to 21. Decreasing in numbers were American Robin, dropping from rank 8 to 25; Rose-breasted Grosbeak, from 11 to 32; White-breasted Nuthatch, from 12 to 23; and Northern Flicker, from 25 to 41. As with changes in species, habitat differences probably played a major role in these shifts in abundance. Grazing of cattle on the balds probably favored robins and flickers. Dead chestnut trees could have provided more nesting sites for flickers. The taller grasses and brushy growth in the balds today certainly provide better habitat for bobwhites. Canada Warblers and Winter Wrens were most often seen in the dense growths of rhododendron under hemlocks along the mountain streams, but it is not clear whether this habitat is more common now than before. Possibly, removal of the virgin timber encouraged rhododendron growth. The decrease in White-breasted Nuthatches might be associated with the removal of virgin timber as well. The decrease in Rose-breasted Grosbeaks is more puzzling, because they were usually seen around the edges of balds.

Ganier and Clebsch (1946) located a pair of Red-breasted Nuthatches in a grove of virgin hemlocks adjoining Stratton Gap. This finding extended the known breeding range of the species southward from its nearest outpost near Clingman's Dome. Although the old virgin hemlocks have been cut, there is still a stand of fairly large hemlocks just south of Stratton Gap. On 17 June 1981 we searched this hemlock grove and again discovered a pair of Red-breasted Nuthatches. Simpson (1976) reviewed the status of the Red-breasted Nuthatch in the southern Appalachians and urged that all evidence of breeding be reported. We are happy to report that after 35 years, the Red-breasted Nuthatch can still be seen in the Unicois during the breeding season.

CONCLUSIONS

The avifauna inhabiting the Unicois above 4,000 feet during late June has shown both stability and change during the past 35 years. Thirty-four species observed 35 years ago are still present, although the relative abundance of some species has changed. The number of new species (11) is almost the same as the number of "lost" species (10), suggesting constancy in the total number of species. Further study is needed, however, to determine if the missing species are totally absent above 4,000 feet. Two trends appear to describe the invasion by new speices: (1) range expansion upward and/or southward, and (2) an increase in the raptor population. Range contractions downward and/or northward appear to characterize the absent or declining species.

LITERATURE CITED

DeVore, J.E. 1973. Golden Eagle in the Unicoi Mountains. Chat 37:50.

Ganier, A.F. 1954. A new race of the Yellow-bellied Sapsucker. Migrant 25:37-41.

Ganier, A.F., and A. Clebsch. 1944. Summer birds of the Unicoi Mountains. Migrant 15:61-65.

Ganier, A.F., and A. Clebsch. 1946. Breeding birds of the Unicoi Mountains. Migrant 17:53-59.

Peterson, R.T. 1980. A Field Guide tó the Birds East of the Rockies. Houghton Mifflin Co., Boston.

Potter, E.F., J.F. Parnell, and R.P. Teulings. 1980. Birds of the Carolinas. Univ. N.C. Press, Chapel Hill.

Simpson, M.B., Jr. 1976. Breeding season habitat and distribution of the Red-breasted Nuthatch in the southern Blue Ridge Mountain province. Chat 40:23-25.

Simpson, M.B., Jr. 1977. High elevation nesting of the Indigo Bunting near Mt. Pisgah, N.C. Chat 41:72.

Stevenson, H.M., and A. Stupka. 1948. The altitudinal limits of certain birds in the mountains of the southeastern states. Migrant 19:33-59.

Stupka, A. 1963. Notes on the Birds of the Great Smoky Mountains National Park. Univ. Tenn. Press, Knoxville.

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Backyard Birding

... with Gail T. Whitehurst

The Shrike That Came to Dinner

On 13 February 1983, I was observing several species of birds at three feeders located outside my kitchen window. Around 0900, I noticed a disturbance on the ground underneath a thistle feeder. A Loggerhead Shrike was on the ground with a Dark-eyed Junco, which had been feeding below the feeder. The shrike hit the bird with its beak and then, with the junco still struggling, held the junco's head to the ground with its feet. After the junco ceased struggling, the shrike grabbed the bird with both feet and flew off, without apparent difficulty.

The shrike apparently came from a nearby field where I have seen one on numerous occasions during the winter. This is the first time I have witnessed a shrike capturing another bird, though I have seen them chasing birds, and shrikes are well known for including birds in their diet. I have seen them take insects several times. On one occasion in Arkansas, I watched one capture and consume a shrew (presumably *Blarina brevicauda* or *B. carolinensis*). The only other avian predator I have seen at feeders was a Sharp-shinned Hawk.—CHARLIE W. WOOTEN, P.O. Box 755, Elgin, S.C. 29045

Behold, the Not-so-gentle Bluebird

Bluebird enthusiasts often comment on the gentle demeanor of their favorite species and complain bitterly when these lovely birds are driven from nesting boxes and cavities by House Sparrows, European Starlings, and flying squirrels. During the 16 summers that I have had bluebird boxes in my yard near Zebulon, N.C., I have seen these structures used by Carolina Chickadees, Carolina Wrens, Great Crested Flycatchers, and flying squirrels as well as Eastern Bluebirds. Although bluebirds annually scouted a box erected in February 1975, chickadees used it every nesting season from 1975 through 1981, and I never saw any evidence of interspecific competition.

On 28 March 1982, bluebirds again scouted this particular box, which was a gift from Jack Finch, a founder of Homes for Bluebirds, Inc. Nonetheless, on 14 April the box contained a nearly completed but still unlined chickadee nest. I was away from home for several days. Upon my return, I was surprised to see bluebirds perched in the oak tree near the box, which I assumed to be occupied by chickadees. On 20 April I saw the female bluebird carrying nesting material into the box. I lifted the hinged front panel and saw a neat cup of pine needles resting atop the still unlined chickadee nest. Almost immediately after I closed the box, the female added another pine needle to the nest. On 27 April the nest contained three bluebird eggs, and two additional eggs were laid to complete the clutch. On 18 May the nest contained five downy young, apparently about 5 days old. Although I did not witness the fledging, the abundance of bluebirds in the yard throughout the summer suggested a successful nesting. In late October bluebirds were seen perching atop the box and inspecting the interior. I hope this means they will roost in the box this winter and nest successfully again in 1983.

Naturally I wrote Mr. Finch to let him know that the box had at last been used by bluebirds and to inquire about his experiences with bluebirds' appropriating boxes already occupied by other species. Mr. Finch keeps detailed records of occupancy for the numerous boxes he has placed around golf courses in North Carolina and several other states. He reported that on 19 May 1982 he had found five baby bluebirds in Box No. 4 at the Zebulon Country Club, which is adjacent to my property. The young were in a House Sparrow nest that appeared to be on top of a bluebird nest.

On 17 July 1978, while monitoring boxes on the golf course at River Hills Plantation, Clover, S.C., Finch found three 11-day-old bluebirds in Box No. 5. This nest was 100% sparrow nest. Finch questioned men working nearby, and they reported that they had seen bluebirds and sparrows fighting.

On 10 May 1982 Finch had a nest of six Carolina Chickadees about 14 days old at his home near Bailey, N.C. One nestling was found dead in the box that day. The following day his son, who was working nearby, saw a male and a female Eastern Bluebird come out of this box. Upon checking the nest, he found two more dead chickadee nestlings. The next day one more was dead, but the remaining two apparently fledged. This was Mr. Finch's first experience with bluebirds actually killing other birds.

A.C. Bent, in his *Life Histories of North American Thrushes, Kinglets, and Their Allies* (U.S. Nat. Mus. Bull. 196, 1949), comments that Eastern Bluebirds have been known to compete successfully with House Sparrows and Tree Swallows that attempted to usurp their nesting boxes. He cites one instance of bluebirds' removing eggs from a swallow nest and dropping them on the ground. The bluebirds raised their second brood in the box formerly occupied by the swallows, and the latter species subsequently occupied the box vacated by the bluebirds.

"As the bluebird population increases and we make closer observations, I am sure we will see more bluebird take-over of other species' nests," Mr. Finch concluded. He correctly notes that building on top of an abandoned nest of another species should not be regarded as a take-over.

Anyone interested in ordering bluebird boxes or literature about bluebirds from Mr. Finch can write him at Route 1, Box 341, Bailey, N.C. 27807. Homes for Bluebirds, Inc., was organized in February 1973 to aid in restoring and perpetuating the bluebird population. Donations are tax deductible. "Come Back, Little Bluebird" is a brochure that offers many practical suggestions on building, erecting, and monitoring bluebird houses.—ELOISE F. POTTER, Route 3, Box 114 AA, Zebulon, N.C. 27597.

CBC Roundtable

... with Louis C. Fink

About Superbird

With interest I read the account of the giant teratorn from South America (Fall 1982 issue of *Chat*) that was alleged to have had a wingspan of 250 feet and to have weighed approximately 160 pounds. Such a bird would have a span about twice the height of a tall pine tree. I find such a report incredible and more than a little suspect.

Be that as it may, I took the time to estimate what the wingspan of a bird of around 160 pounds should be, based upon information at hand today, and came up with a figure much less than 250 feet.

A teratorn was a vulture; all huge flying birds that cruise the land today, and in the past, seem to be vultures. I don't know why. I took average wingspans and weights of various Old and New World vultures from Amadon and Brown's *Birds of Prey of the World* and from Brown, Urban, and Newman's *Birds of Africa,* as listed below.

	Weight in lbs. (X)	Wingspan in feet (Y)
Aegypius monachus	21.5	8.6
Aegypius occipitalis	10.6	6.9
Aegypius tracheliotus	15.4	8.6
Coragyps atratus	3.5	4.5
Gymnogyps californianus	19.5	9.0
Gyps africanus	11.6	7.2
Gyps fulvus	19.5	7.7
Gyps rueppellii	17.4	7.9
Necrosyrtes monachus	4.0	5.7
Vultur gryphus	26.4	10.5

Assuming that the body weight was the independent variable (X) and wingspan the dependent variable (Y), regression of the latter on wingspan yielded a highly significant correlation of 0.943, which means that $(0.943)^2$ or about 89% of the variation in wingspan of these vultures is a function of body weight.

The close relationship is remarkable in view of the fact that these birds are known to vary somewhat in wingloading, and the plot of body weight against wingspan is probably somewhat curvilinear and not precisely linear as I have assumed. Nevertheless, the fit was good enough to make some rather striking predictions.

The relationships between wingspan and body weight produced the following linear equation: $Y = 4.43 + 0.216X$, where X and Y are body weight and wingspan, 4.43 the point on the Y axis where the best fitting regression line intercepts the Y axis, and 0.216 the tangent of the angle described by the slope of the regression line above the X axis.

A large teratorn from California has been estimated to have had a wingspan of 15 feet and to have weighed 50 pounds. Plugging 50 into the equation estimates wingspan at 15.2 feet. A vulture weighing 160 lbs. would have a predicted wingspan of 39.0 feet, far less than 250.

Of course we can flip our analysis around and allow wingspan to be the X variable. If we do that, we predict our California teratorn to have had a body weight of about 46 pounds and our South American monster at around 1000! That would indeed be a superbird. Perhaps the South American vulture evolved on a different scale of wingspan to body weight than modern vultures and the California teratorn.—JOSHUA A. LEE, 5104 Newcastle Road, Raleigh, N.C.

Berries for Bluebirds

Jack R. Finch, Route 1, Box 341, Bailey, N.C. 27807, is interested in developing methods for preserving Flowering Dogwood berries so they can be fed to Eastern Bluebirds during late-winter snow and ice storms. He is experimenting with techniques that reduce the moisture content to prevent spoilage during storage. He would like to correspond with anyone who has experience with such processes.

Evolution in the House Finch

According to John W. Aldrich (J. Yamashina Inst. Ornith. 14:179-186), the population of House Finches breeding in the eastern United States has developed some noticeable differences from its parent stock. The birds released on Long Island about 1940 are believed to have been from the grassland and chaparral region of southwestern California. Comparative studies indicate that the eastern population has developed slightly shorter wings and tails, markedly shorter tarsi and toes, and significantly larger bills than found in California birds. Dr. Aldrich suggests that the shorter wings and tails, if indicative of body size, may be correlated with the more moist climate in the East. Shorter legs and toes may be an adaptation to the colder climate in the East and to this largely feeder-dependent population's habit of feeding from perches rather than on the ground. The larger bill size may be an adaptation to feeding heavily on sunflower seeds rather than the small weed seeds that are the primary winter food of the California birds. Aldrich notes that when eastern House Finches have an opportunity to choose between large striped and small black sunflower seeds, they prefer the small ones. He also found that females visit his hanging feeders more often than males do. He believes this is a behavioral difference rather than a disproportion in the sex ratio of the eastern population.

Winter Scarcity

Observers report a lack in some places of our winter finches. The editor of this column in Rocky Mount has a feeder that attracted two House Finches all winter, no siskins, no grosbeaks, no goldfinches. Even the juncos seem reduced in number. In Cleveland, Ohio, observers report House Finches are more abundant than usual, but other winter finches reduced in numbers. If you're ever in Cleveland in the fall, walk a few blocks from the downtown hotels to the lakefront park near the Cleveland Browns' stadium. I spent a morning there and delighted in close views of warblers, resting after the trip south over Lake

Erie. My mind is still full of pictures of dozens of Black-throated Blue Warblers I saw at arm's length.

Search for Color-marked Shorebirds

In the spring of 1983, shorebirds were color-marked at several locations in South America, California, North Carolina, Virginia, and New Jersey as part of a study of migration routes. This study is part of the Pan American Shorebird Program sponsored in part by the World Wildlife Fund, the Academy of Natural Sciences of Philadelphia, and Manomet Bird Observatory. The 1983 work will focus on three species: Sanderling, Red Knot, and Black-bellied Plover.

If you observe a color-marked shorebird, please try to note the following:

1. DYE — Color and location on body
2. LEG FLAG — Color and leg (left, right)
3. LEG BAND — Color and leg (left, right)

Even incomplete color-marking information will be very useful. Please send reports to Dr. Marshall A. Howe, Patuxent Wildlife Research Center, U.S. Fish and Wildlife Service, Laurel, Maryland 20708.

Trouble in Paradise

Suriname, the former Dutch colony in South America, has more nature preserves for its size than most countries. It is home to 669 tropical species and bird watchers have made it a mecca. A 3-week tour for $2,300 was popular. But an Army sergeant has taken over the government of Suriname and the U.S. State Department now says the tropical country is too dangerous for ordinary travelers.

In reporting this sad news, the *Wall Street Journal* included results of a 1980 survey by the Fish and Wildlife Service: 21 million Americans feed birds; over five million can identify 40 species; 2½ million keep lists. With tongue in cheek, one observer raised the question of organizing an insurgency force to invade Suriname.

Newspaper Gleanings

The most exciting news to this observer is the report of two eggs of California Condors being hatched, and the young feeding successfully on chopped day-old mice. These 8-foot, 25-pound birds normally lay one egg every two years. When an egg is removed from the nest, they lay another.

Glad-to-hear-it Department: Two men from New Bern, N.C., were fined $1,500 each for hunting Canada Geese by moonlight.

Sorry-about-that Department: In Lumberton, N.C., woodpeckers drilled holes in light poles at the football field, and $100,000 has been budgeted to replace the lighting system.

The swallows are back at Capistrano, and the buzzards have returned for their big day at Hinckley, Ohio, where the locals stage a big breakfast to greet the birds. The citizens of Rokeby Lock claim their buzzards return before the Hinckley birds, so they're having their own party.

At the battlefield of Gettysburg, at least 870 Black and Turkey Vultures wintered over the fields where 50,000 men were wounded or killed. The legend is that the birds began roosting in 1863 after the battle, and have returned ever since. One biologist says this is one of the largest vulture roosts in the country.

New Editor for South Carolina Field Notes

Beginning with next issue, William Post succeeds Julian R. Harrison as editor of the South Carolina field notes for *Chat.* Dr. Post is the newly appointed Curator of Ornithology at the Charleston Museum. He is well known for his studies of the Seaside Sparrow in New York and Florida, and he has done extensive field work in the Caribbean.

Dr. Harrison, who has been associate GFN editor since June 1972, will continue as a member of the CBC Records Committee. During part of his 11-year editorship, Harrison has also served ably as a vice president of the club. Well done, Julian! We are grateful to you.—EFP

BRIEFS FOR THE FILES

(Continued from Page 56)

LARK SPARROW: Individuals were noted at Pea Island on 26 August (Allen Bryan) and at Portsmouth Island on 7 September (John Fussell).

CLAY-COLORED SPARROW: Dorothy Foy observed two at Oriental, N.C., on 8 November.

TV TOWER KILL: Jay Carter and Jim Parnell found 1300 birds of 51 species, including 26 species of warblers, killed at the WECT tower near White Lake, N.C., on the morning of 12 October. Highlights were a Black Rail, a Black-billed Cuckoo, five Gray-cheeked Thrushes, two Sharp-tailed Sparrows, six Seaside Sparrows, and the following warblers: two Golden-wingeds, one Swainson's, one Worm-eating, two Nashvilles, five Black-throated Greens, three Blackburnians, and four Bay-breasteds.

COMMENTS ON SPRING REPORTS OF BAIRD'S SANDPIPERS: Claudia Wilds has expressed concern about the validity of the Baird's Sandpiper reported in the spring of 1982 at Pea Island (Chat 46:119). She is extremely knowledgeable on shorebird plumages, and she studied many skins of Baird's and White-rumped Sandpipers at the National Museum in Washington, D.C., examining in detail the description written in *The Chat* "Briefs for the Files." She concluded that: (1) the pale buffy ground color to the underparts is consistent with Baird's and very infrequent on spring White-rumpeds; (2) the streaks on the flanks are totally inconsistent with Baird's, but are present on all adult White-rumpeds; (3) the back pattern is inconsistent with either species in the spring; and (4) the black mid-vein in the tail does not rule out White-rumped, as some adults have this pattern.

Thus, there is concern by Wilds that the bird in question may have been a White-rumped, which is common in spring at Pea Island. The other spring report of Baird's in North Carolina (Chat 35:80) has details published, such as size approximately that of a Swamp Sparrow, that are not convincing, in my opinion. There is no specimen or photograph, or thoroughly described report of a Baird's in spring in North Carolina. The spring reports for South Carolina also should undergo closer and renewed examination. A sighting of this species in the spring in the Carolinas should be written up as a General Field Note for this journal; a complete description must be provided. Baird's *does* occur as a regular but rare fall migrant in the Carolinas, both inland and along the coast, but occurrences anywhere in eastern North America are extraordinary during the spring.—HEL

General Field Notes

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Brown-headed Nuthatches Store Pine Seeds

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I observed a Brown-headed Nuthatch (*Sitta pusilla*) storing seeds of a Loblolly Pine (*Pinus taeda*) at 1800 on 8 October 1981 at Rockingham, N.C. A nuthatch placed winged pine seeds in bark crevices on the vertical trunk of a 13-m high Loblolly Pine on several occasions and secured the food by pounding it in crevices at heights of 5 to 6.5 m. The bird clung to the pine bark in both vertical and horizontal positions while caching the food. Locally the 1981 Loblolly Pine seed crop was excellent.

I observed another Brown-headed Nuthatch storing seeds of the Longleaf Pine (*P. palustris*) at 1100 on 13 October 1981 at Derby, N.C. The nuthatch extracted a winged seed from a live Longleaf Pine and then flew to a dead 10.7-m pine snag that had some bark attached. The bird secured the pine seed in a bark crevice at 6.7 m by pounding it in from diagonal to vertical positions (tail above head) while clinging to the bark. To maintain its balance, the bird fluttered its wings several times while caching the pine seed. The same bird stored a pine seed in a bark crevice 6.1 m high on the vertical trunk of a 13-m live Longleaf Pine. The nuthatch held a horizontal position while it cached the pine seed, and no wing flicking was observed. The 1981 Longleaf Pine seed crop also was excellent.

On several occasions, I have seen Brown-headed Nuthatches retrieving stored pine seeds. In a Longleaf Pine forest in the Sandhills Game Management Area, Hoffman, N.C., at 1145 on 17 December 1980, a Brown-headed scaled off a piece of pine bark at 6.1 m on the vertical trunk of a 15.3-m tree. The bird briefly probed and extracted a seed without its wing attached. The bird then flew to another Longleaf Pine where it hammered the food. I do not know what animal stored this seed. Again the crop was excellent.

Norris (1958) observed Brown-headed Nuthatches storing single pine seeds on trunks or limbs of pines in Georgia, but provided no further details. He also observed food caching in Pygmy Nuthatch (*Sitta pygmaea*). Roberts (1979) overlooked this reference in his review of avian food-storing behavior, and listed the Brown-headed Nuthatch as a probable food-storer, presumably based on documented food-storing behavior at the closely related Pygmy Nuthatch (Stallcup 1968). The purpose of this note is to provide the first published descriptions of food-storing behavior in the Brown-headed Nuthatch and to point out an oversight of this behavior in a recent major review of avian food-storing behavior.

LITERATURE CITED

Norris, R.A. 1958. Comparative biosystematics and life history of the nuthatches *Sitta pygmaea* and *Sitta pusilla*. Univ. Cal. Publ. Zool. 56:119-300.

Roberts, R.C. 1979. The evolution of avian food-storing behavior. Amer. Nat. 114: 418-438.

Stallcup, P.L. 1968. Spatio-temporal relationships of nuthatches and woodpeckers in Ponderosa Pine forests of Colorado. Ecology 49:831-843.

Status of the Le Conte's Sparrow in the Carolinas

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On 4 December 1982, I flushed a small sparrow on several occasions from a moist grassy field on the edge of Beaverdam Reservoir in northern Wake County, N.C. I tentatively identified the bird as a Le Conte's Sparrow (*Ammodramus leconteii*) because of its sharp tail, rather low and feeble flight, and overall slimness. It was no larger than the many Savannah Sparrows (*Passerculus sandwichensis*) in the same field. As the bird never perched in sight, and as its flight was always directly away from me, I was unable to obtain any other field marks.

Allen Bryan and I flushed the sparrow in question in the same area on 17 December. It immediately flew to a shrub in a nearby hedgerow and remained in sight there and on several other perches for about 5 minutes. It was, indeed, a Le Conte's Sparrow. The streaks along the side of the breast and belly, thin purplish nape streaks, whitish median stripe through the crown, orange stripe over the eye, absence of a malar stripe, and especially the soft peach-orange color of the underparts and face were clearly seen. Because the streaks on the underparts extended onto the upper breast, nearly meeting along the midline, I suspect that the bird was an immature. The Le Conte's was seen again on 18 December by Derb Center and Wayne and Fran Irvin, in addition to Bryan and me.

This appears to be the third winter record for this species in North Carolina, but the first away from the coast (Fig. 1). The other winter records are two at Bodie Island from 30 December 1974 to 10 January 1975 (Chat 39:10, 42:60) and one near Carolina Beach on 25 January 1981 (Chat 45:83). In South Carolina, there are numerous winter records for the Savannah River Plant, the Charleston area, and the McClellanville area. Other isolated winter records in the latter state are at Chester (South Carolina Bird Life, 1970, p. 529), near Pendleton (Chat 45:83), at Santee National Wildlife Refuge (Chat 39:63), and in the Litchfield Beach – Pawleys Island area (Chat 39:10, 45:83). Le Conte's Sparrow possibly winters regularly north to Santee refuge and Carolina Beach; it certainly is regular (though rare or uncommon) north to the Savannah River Plant and the Santee River delta (see Fig. 1).

I have also shown the published spring and fall records (Fig. 1) for localities outside the regular winter range. The few spring records show no distinct geographical pattern. However, in the fall, the species seems somewhat more likely to occur near the coast than inland.

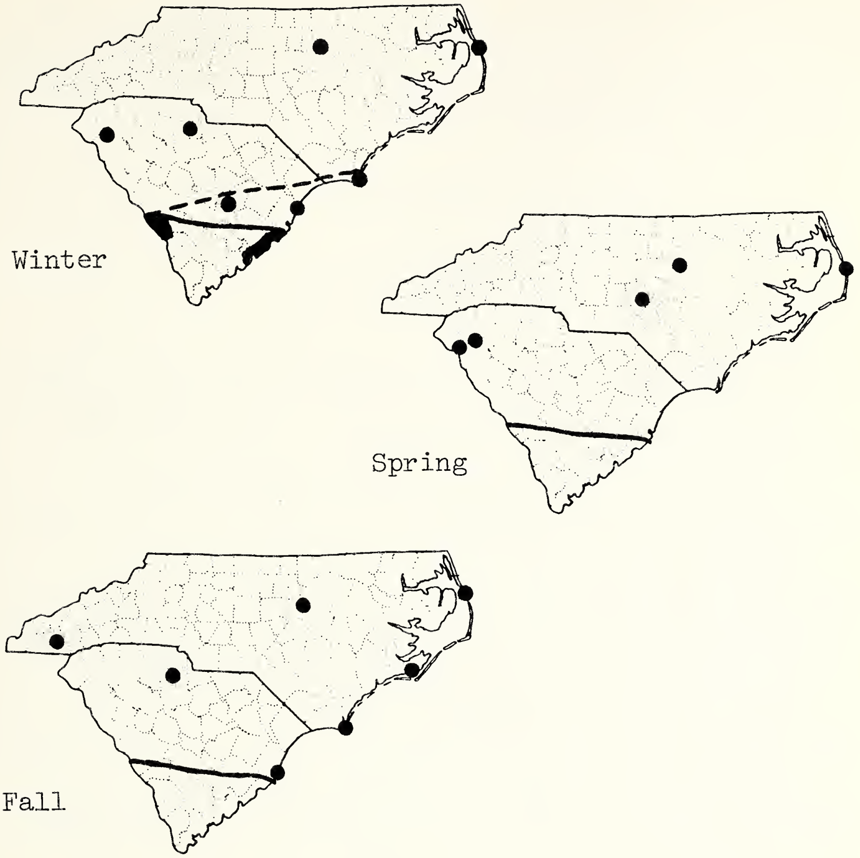

Fig. 1. Distribution of the Le Conte's Sparrow in the Carolinas. Dots indicate isolated records; solid areas indicate numerous records. Solid line is the probable northern edge of the regular winter range; dotted line is the possible northern limit of regular occurrence.

North Carolina records span the period from 17 October to 25 January, in addition to 2 April, 21 April, and 30 April. Dates in South Carolina range from 25 October to 27 April.

Le Conte's is an open country sparrow, occurring in various types of herbaceous cover. Although most authors indicate that it occurs most often in winter in broomsedge (*Andropogon*) fields, individuals that I saw near Pendleton, S.C., and Beaverdam Reservoir, N.C., were found in grassy fields (with little broomsedge) in damp ground. The vegetation in these fields averaged 0.5 m in height. This species also occurs in the drier portions of marshes (ranging from fresh to salt) and in rice fields. Thus, in general, Le Conte's should be looked for in fairly thick grassy cover of knee height, often where vegetation is somewhat matted, and preferably where slightly damp.

This is a very secretive species that seldom utters even a call note in winter. Frequently, a special search must be made to find Le Conte's Sparrows, as they tend to be scarce in hedgerows and in weedy, forb-covered fields inhabited by most sparrows. Unless shrubs or saplings are present in the habitat (in which the sparrows may perch), it can be very difficult to obtain field marks on the birds as they flush and then drop back into thick herbaceous cover. Thus, Le Conte's Sparrow is undoubtedly more numerous in the Carolinas than the meager number of reports suggest.

BRIEFS FOR THE FILES

HARRY E. LeGRAND JR.

(All dates 1982 unless otherwise indicated)

COMMON LOON: An outstanding inland count was 280 to 300 seen at Jordan Reservoir, in eastern Chatham County, N.C., by Bill and Margaret Wagner and Johnnie Payne on 29 November. Zach Bynum saw 40 on Salem Lake at Winston-Salem, N.C., on 13 and 14 November.

RED-THROATED LOON: Very rare inland was one noted by Ricky Davis with a flock of Common Loons at Jordan Reservoir on 26 November.

HORNED GREBE: Bill and Margaret Wagner observed a migratory flock of 35 grebes on 29 November at Jordan Reservoir.

GREATER SHEARWATER: This shearwater has been rather difficult to find on pelagic trips in the past few years. Three Greaters were seen by Dave Sibley, Robert Ake, and Paul DuMont off Hatteras, N.C., on 9 October; this trip was the only one of five scheduled this fall by Ake and DuMont that departed from shore. Other shearwaters on this trip were 56 Cory's and 45 Audubon's.

AUDUBON'S SHEARWATER: Dan Kaplan and Norm Budnitz saw one from shore at Coquina Beach on Bodie Island, N.C., on 15 August.

BLACK-CAPPED PETREL: Approximately 50 were observed off Cape Hatteras, N.C., on the Ake-DuMont pelagic trip on 9 October.

AMERICAN WHITE PELICAN: Derb Carter observed one flying N over the Umstead Bridge at Croatan Sound, N.C., on 3 November.

DOUBLE-CRESTED CORMORANT: Five birds were late at Jordan Reservoir on 3 December (Don Wright), whereas one was noteworthy on 7 November at Burlington, N.C. (Allen Bryan).

ANHINGA: Two were seen near Fayetteville, N.C., by Philip Crutchfield as late as 28 September.

GREAT BLUE HERON: A good inland count was 80 birds noted on 26 September at Jordan Reservoir by Bill Wagner and party.

CATTLE EGRET: Philip Crutchfield observed 55 postbreeding egrets at Fayetteville on 7 August, and 18 were still present on 30 September. Two were rare at Beaverdam Reservoir in northern Wake County, N.C., on 7 October (Merrill Lynch), and another was very late on 29 November at Jordan Reservoir (Bill and Margaret Wagner).

SNOWY EGRET: At least four were present during August and September at Fayetteville, as noted by Philip Crutchfield, and another was seen at Jordan Reservoir on 6 September by Ross Jervis.

TRICOLORED HERON: Jim McConnell and others saw one on 22 August at the Falls of the Neuse Reservoir lakebed, east of Durham, N.C.

YELLOW-CROWNED NIGHT-HERON: An immature was of interest on 2 October at Jordan Reservoir (Ricky Davis, Allen Bryan). Another immature was late on 21 and 23 November, seen by John Fussell at Fort Macon State Park, N.C.

AMERICAN BITTERN: Somewhat early was one seen by Ricky Davis on 29 August at Beaverdam Reservoir.

GLOSSY IBIS: Infrequently seen inland was one noted by Don Tarbet, Beth O'Neill, and Kay Coburn at Raleigh, N.C., on 28 March.

WHITE IBIS: One on 9 October at Jordan Reservoir was late for a piedmont locality (Andy Towle).

ROSEATE SPOONBILL: An excellent find was an adult spoonbill at Middle Marshes near Beaufort, N.C., as noted by Jim and Nancy Godwin on 13 and 14 September.

TUNDRA SWAN: Away from usual wintering areas were two seen by Ricky Davis at Beaverdam Reservoir on 17 November and one observed at Sunset Beach, N.C., on 26 November by Mark Oberle.

SNOW GOOSE: Don Tarbet noted two white-phase migrants at Jordan Reservoir on 14 March.

FULVOUS WHISTLING-DUCK: Single birds were observed at the following locations near the North Carolina coast: the Bodie Island lighthouse pond on 21 November (Don Tarbet, Tom Howard, and party), Cedar Island on 22 November (Rich Boyd, Margaret Conderman, Ecky and Sue Meadows), and Pamlico Point in northeastern Pamlico County on 26 November (M.E. Whitfield, T. Simpson).

BLUE-WINGED × CINNAMON TEAL: Anne and Vernon Waters saw a male hybrid of these species at Magnolia Gardens, near Charleston, S.C., on 27 November.

NORTHERN SHOVELER: This duck is rather rare inland in the fall; thus, of interest were five seen by Andy Towle at Jordan Reservoir on 25 September and four seen by Peggy Jansen and Dick Thomas at Lake Pinehurst, Moore County, N.C., on 17 October.

COMMON GOLDENEYE: An excellent piedmont count was 11 goldeneyes noted by Bill and Margaret Wagner at Jordan Reservoir on 29 November.

COMMON EIDER: Seldom seen in summer or early fall was a female or immature seen by Barbara Spencer and others on an island in Hatteras Inlet, N.C., on several dates in early September. Very rare in the Southeast was an adult male Common, observed on 20 November by Fred Patton and Chip Davis near the Cape Lookout lighthouse, Carteret County, N.C.

WHITE-WINGED SCOTER: Philip Crutchfield and party saw 12 near Pamlico Point, N.C., on 12 November.

SURF SCOTER: Quite early for the fall season was a male noted by M.E. Whitfield, Tim Playforth, and Gary Lancaster at Pamlico Point on 20 August.

MISSISSIPPI KITE: Seldom seen in the upper piedmont were two near Townville, S.C., on 29 August, as seen by Harry LeGrand, Paul Hamel, and Alan Avakian.

NORTHERN GOSHAWK: In the mountains of North Carolina, adults were noted by Chris Haney 0.5 mile E of Newfound Gap in the Great Smoky Mountains National

Park on 11 April 1981 (full details published in *Migrant* 52:4), and by Arch McCallum at Mount Mitchell on 23 October.

BROAD-WINGED HAWK: Notable flights were 1780 observed at Pilot Mountain State Park, N.C., on 22 September (Ramona Snavely et al.) and 140 at Devil's Courthouse, on the Transylvania-Haywood County line, N.C., on 25 September (Ruth and Jerry Young). Rare for the coast were four noted by Greg Massey at Fort Fisher, New Hanover County, N.C., on 15 October.

ROUGH-LEGGED HAWK: Extremely early and rare was an individual observed at Raleigh on 2 October by Don Tarbet.

GOLDEN EAGLE: Neil and Lynn Smith noted an immature at Hanging Rock State Park N.C., on 30 October.

BALD EAGLE: At Beaverdam Reservoir, an adult and an immature were seen on several dates in September by many observers, and as many as two adults and an immature were noted between 15 August and 2 November at Jordan Reservoir, fide Bill Wagner. Rare nowadays on the North Carolina Outer Banks was an adult seen by Jim and Elizabeth Pullman at Pea Island on 12 October. An immature was found by Skip Prange on Core Banks, N.C., on 29 October. Other records for North Carolina were immatures seen in migration at Pilot Mountain State Park on 18 September (Mecklenburg Audubon Society) and 25 September (Ramona Snavely, Pat Culbertson); and an adult and an immature observed on 14 September near Southern Pines (Mike Russell, Libby Evans, et al.). There were numerous reports for the central coast of South Carolina, as usual, but this species is a regularly occurring, breeding permanent resident in that area.

PEREGRINE FALCON: In addition to a handful of coastal reports, one was noted by Bill and Margaret Wagner at Jordan Reservoir on 21 and 22 September, and another (or the same) bird was seen there on 25 September by Andy Towle. Philip Crutchfield had a Peregrine near Fayetteville on 28 September.

MERLIN: The only inland report for the fall was one seen by Pat Culbertson at Pilot Mountain State Park on 29 September.

COMMON MOORHEN: One was noted by Zach Bynum on Salem Lake at Winston-Salem on 13 November.

AMERICAN AVOCET: One was rare, especially on a tidal mud flat, at Portsmouth Island, N.C., where seen by John Fussell on 24 November.

SHOREBIRDS AT BEAVERDAM RESERVOIR: A large variety of shorebirds was noted at Beaverdam Reservoir during the fall, particularly by Merrill Lynch and Ricky Davis. Highlights included 17 Semipalmated Plovers on 12 September (Lynch); Lesser Golden-Plovers from 12 to 24 September, with eight on 19 September (Lynch, Davis); a Black-bellied Plover on 18 September (Davis); a Red Phalarope on 18 September (Lynch, Karen Masson); a Short-billed Dowitcher on 12 and 18 September (Lynch); five Sanderlings on 19 September and one on 24 September (Lynch, Davis); 75 Least Sandpipers on 19 September (Davis); a White-rumped Sandpiper on 29 September (Lynch et al.); a Baird's Sandpiper on 19 and 21 September (Lynch, Davis, et al.); three Dunlins on 17 October (Davis); four Stilt Sandpipers on 19 September, with one until 29 September (Lynch, Davis); and seven Buff-breasted Sandpipers on 12 September, with one to two until 21 September (Lynch).

LESSER GOLDEN-PLOVER: In addition to three reports of single birds at Pea Island this fall, two were observed by John Fussell on 22 September at Portsmouth Island.

BLACK-BELLIED PLOVER: Philip Crutchfield had one to two at Fayetteville from 15 September to 8 November, and Bill and Margaret Wagner saw one at Jordan Reservoir on 31 October.

HUDSONIAN GODWIT: As usual, the only reports came from Bodie and Pea Islands, where these godwits are seen each fall. The best count was three at Pea Island on 9 October (John Fussell, Bob Holmes, Larry Crawford).

MARBLED GODWIT: An excellent count for North Carolina was 200 seen by Derb Carter and Lance Peacock at Portsmouth Island on 10 October.

WHIMBREL: Most unusual for the mountains were two seen by George Mayfield on 30 August 1980 at Big Bald Mountain on the North Carolina-Tennessee line. The birds were at an elevation of 5500 feet and were foraging on a road and in a grassy meadow; full details are in *Migrant* 52:4.

LONG-BILLED CURLEW: John Fussell observed this species at Portsmouth Island from 6 September to 10 October; three were present on 10 October. Perhaps the most extensive mud flats in North Carolina are located on the Pamlico Sound side of the island, and this rare shorebird probably occurs each fall on these flats.

UPLAND SANDPIPER: Rare inland was one seen on 28 August at the unfilled Falls of the Neuse Reservoir by Dan Kaplan and party.

WILSON'S PHALAROPE: The only seasonal report was of two individuals seen by Harry LeGrand, Robert Ake, and others at Pea Island on 6 September.

RED-NECKED PHALAROPE: Exciting inland were one at the Falls of the Neuse Reservoir near Durham on 18 September (Ricky Davis) and another on Rose's Lake near Fayetteville, from 6 to 9 November (Jim and Shirley Wheeling, Philip Crutchfield). The November dates are very late for this species, yet an excellent description was provided. One was seen in Hatteras Inlet on 5 September by Harry LeGrand, Merrill Lynch, and party; and 19 were noted on a pelagic trip off Hatteras on 9 October (Dave Sibley et al.)

RED PHALAROPE: One seen by Ricky Davis at the Falls of the Neuse Reservoir on 18 September may have been the same bird seen that day at Beaverdam Reservoir. Nevertheless, this species is one of the rarest shorebirds on inland lakes and mud flats. One was also seen off Hatteras on 9 October (Dave Sibley et al.).

LONG-BILLED DOWITCHER: Allen Bryan observed 14 away from the coast on impoundments at Mattamuskeet National Wildlife Refuge, N.C., on 21 November.

SANDERLING: In addition to several at Beaverdam Reservoir, five were at Jordan Reservoir on 4 September (Chapel Hill Bird Club) and one was at Fayetteville on 15 September (Philip Crutchfield).

WHITE-RUMPED SANDPIPER: A late individual was observed by Philip Crutchfield and party at Pamlico Point on 14 November.

BAIRD'S SANDPIPER: One was found by Ricky Davis at the salt flats on Pea Island on 6 September.

DUNLIN: Good inland counts were 13 at Jordan Reservoir on 23 October (Allen Bryan, Ricky Davis) and seven at Fayetteville on 6 October (Philip Crutchfield); three were at the latter site on 8 November (Crutchfield).

STILT SANDPIPER: One was noted inland at Jordan Reservoir by the Chapel Hill Bird Club on 4 September.

BUFF-BREASTED SANDPIPER: Harry LeGrand, Merrill Lynch, and others observed one at Cape Hatteras Point on 6 September; surprisingly, no other coastal reports were received.

POMARINE JAEGER: On 30 October off Cape Lookout, Wayne Irvin saw 19 Pomarines, approximately half of which were in dark phase. Two were also seen on the Ake-DuMont pelagic trip off Hatteras on 9 October.

SKUA (SP.?): Seldom seen in the fall were single skuas noted off Cape Lookout by Wayne Irvin. The first was very dark in color and was seen about 25 miles SSE of the cape on 22 August. The second was a uniform, medium brown and was seen 40 miles SSE of the cape on 19 September.

ICELAND GULL: Likely the earliest ever for North Carolina was a first-fall individual at Cape Lookout on 17 October, as observed by John Fussell, Wayne Irvin, and Robert Hader. Another immature was seen at Cape Hatteras Point on 3 December by Royce Hough.

GULL-BILLED TERN: Very rare after September in the Carolinas was one seen by John Fussell on 10 October at Portsmouth Island.

COMMON TERN: Merrill Lynch, Ann Carter, and Derb Carter saw one at Beaverdam Reservoir on 21 September.

ROSEATE TERN: An excellent find was one in breeding plumage seen at rest with Common Terns at Cape Hatteras Point on 27 August. Allen Bryan provided convincing details. [There were several reports along the coast of Roseates seen only in flight. Confusion with other terns, particularly Forster's, is possible, especially when they are not seen at rest in direct comparison with other species of terns.—HEL]

BLACK TERN: Inland sightings were reported from Lake Wheeler near Raleigh, Jordan Reservoir, Beaverdam Reservoir, Falls of the Neuse Reservoir, and Fayetteville. The peak count was eight, at Falls of the Neuse on 9 August (Bill and Margaret Wagner).

YELLOW-BILLED CUCKOO: A very late individual was noted by M.E. Whitfield and T. Simpson at Lowland, Pamlico County, N.C., on 24 November.

BLACK-BILLED CUCKOO: Fall reports were made of one near Chapel Hill, N.C., on 6 September (Marc Eisdorfer); one near Fayetteville on 27 September (Philip Crutchfield); one at Fort Fisher on 15 October (Greg Massey); and two at Pea Island on 17 and 18 October (Jim and Elizabeth Pullman).

WESTERN KINGBIRD: Only four fall reports were received, all of single birds along the North Carolina Outer Banks between 23 September and 17 October.

YELLOW-BELLIED FLYCATCHER: This rather rare migrant was seen by Johnnie Payne near Chapel Hill on 21 September, by Greg Massey at Carolina Beach State Park, N.C., on 15 October, and by Perry Nugent near Charleston on 17 October.

TRAILL'S FLYCATCHER: Jim Mulholland noted a silent bird in his yard in Raleigh on 29 August. [*Empidonax* flycatchers, as a group, are uncommon to fairly common fall migrants through the Carolinas, but specific identity of most individuals is difficult; thus, there have been relatively few published fall records of Acadian, Alder, Willow, and Least flycatchers in recent issues of *Chat.* The Alder and Willow, collectively known as "Traill's," are inseparable in the field by plumage. Both are fairly large *Empidonax* flycatchers with olive-brown upperparts, dingy whitish underparts, and only a trace of an eye ring (in comparison with the other species). Note the near absence of the eye ring of the Willow pictured in *Birds of the Carolinas* (Potter et al., 1980) on page 231. The Willow has a "whit" or "wit" call note; the Alder gives a "pip" or "pep" note.—HEL]

LEAST FLYCATCHER: Individuals were noted near Fayetteville on 27 September (Philip Crutchfield) and at Fort Fisher on 15 October (Greg Massey).

BANK SWALLOW: A good total, especially for the coast, was 200 seen by Tom Reeves at Sullivans Island, S.C., on 6 September.

CLIFF SWALLOW: One was notable for the coast at Sunset Beach, N.C., on 12 August (Dan Kaplan, Eric Garner).

FISH CROW: Philip Crutchfield reported a flock of 500 at dusk on 10 October near Fayetteville.

VEERY: One was late at Weymouth Woods Sandhills Nature Preserve, near Southern Pines, N.C., on 11 October (Libba Watson).

BLUE-GRAY GNATCATCHER: One seen by Philip Crutchfield was very late at Fayetteville on 30 November.

WATER PIPIT: One was rather early at Jordan Reservoir, seen by Bill and Margaret Wagner on 23 September.

CEDAR WAXWING: Betty McIlwain reported nesting by this species at Brevard, N.C., observing several young birds during the summer.

YELLOW-THROATED VIREO: The Cape Hatteras National Seashore's "Birds of the Outer Banks" checklist does not contain this species. Thus, very unusual for that area was one seen by Tad Finnell at Bodie Island on 6 September.

PHILADELPHIA VIREO: Rare migrants were seen in North Carolina at Fayetteville on 27 September (Philip Crutchfield), Jordan Reservoir on 2 October (two birds—Allen Bryan, Ricky Davis), Burlington on 3 October (Bryan), Montreat on 26 October (Arch McCallum), and Wilmington on 28 October (Greg Massey).

WORM-EATING WARBLER: Jim Mulholland noted an early migrant or postbreeding wanderer near Raleigh on 7 August.

GOLDEN-WINGED WARBLER: Noteworthy for the coast were singles observed by Jim McConnell and Jim Walterman on 29 August at Pea Island, by Tad Finnell at Bodie Island on 5 and 6 September, and by Tom Reeves on 23 September at Magnolia Gardens near Charleston.

BLUE-WINGED WARBLER: There were seven reports for the fall season, including birds seen with each of the three Golden-winged Warblers listed above. The dates ranged from 7 August to 23 September.

BREWSTER'S WARBLER: This hybrid was seen, and described well, by Philip Crutchfield at Fayetteville on 12 October.

TENNESSEE WARBLER: Greg Massey noted as many as eight at Wilmington between 18 and 28 October; the species is a scarce migrant near the coast.

NASHVILLE WARBLER: One was fairly early on 15 August at Devil's Courthouse along the Blue Ridge Parkway, N.C. (Ruth and Jerry Young). Notable for the coast were singles seen by Greg Massey at Fort Fisher on 3 October and by Jim and Elizabeth Pullman at Pea Island on 17 October. Alan Avakian reported that several small groups were seen this fall in the Clemson, S.C., area, where Nashvilles are normally uncommon.

BLACK-THROATED GREEN WARBLER: An early migrant was seen by Gail Whitehurst at Raleigh on 20 August.

CERULEAN WARBLER: Rare, and easily overlooked, was a female seen well by Jim Mulholland near Raleigh on 9 August.

PALM WARBLER: Ruth and Jerry Young noted an early individual at Devil's Courthouse on 15 August.

CONNECTICUT WARBLER: Good finds were birds seen by John Fussell at Portsmouth Island on 23 September and by Ricky Davis and Allen Bryan at Jordan Reservoir on 2 October.

MOURNING WARBLER: Don Tarbet and Ken Knapp observed one, probably an immature male, at Beaverdam Reservoir on 15 August. This is one of the most elusive passerine migrants in the Carolinas.

WILSON'S WARBLER: Individuals were reported at Lancaster, S.C., on 4 September (Cheryl Phillips); at Pea Island on 6 September (Harry LeGrand et al.); at Fayetteville on 13 September (Philip Crutchfield); at Raleigh on 18 September (Jim Mulholland); and at Sullivans Island, S.C., on 22 September (Tom Reeves).

YELLOW-HEADED BLACKBIRD: Derb Carter, Merrill Lynch, Harry LeGrand, and others saw an immature male and a female at Pea Island on 6 September; and an immature male was seen at a feeder by Kathy Kirkman on 1 October in Pine Knoll Shores, Carteret County, N.C.

ORCHARD ORIOLE: Most individuals of this species have departed the Carolinas by early September; therefore, one was late at Fayetteville on 29 September (Philip Crutchfield).

SUMMER TANAGER: One seen by Jim and Elizabeth Pullman was rather rare and late at Pea Island on 18 October.

ROSE-BREASTED GROSBEAK: Seldom seen after October was an immature male at a feeder near Newport, N.C., from 5 to 8 November (Mary Roberts, John Fussell).

PAINTED BUNTING: William Hutcheson observed a late adult male at Charleston on 25 November.

DICKCISSEL: John Fussell saw a female at his feeder in Morehead City on 19 and 22 November.

HOUSE FINCH: This species apparently bred for the first time at Brevard this summer, fide Betty McIlwain. As many as one male and two females were seen at feeders from 9 June to 6 September, and two juveniles were noted on 2 August. Two females or immatures were seen by Philip Crutchfield on 12 August at Fayetteville, where breeding almost certainly occurred in 1981.

(Continued on Page 46)

Carolina Bird Club
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OUR COVER—Photographer John Trott caught three male Mallards in flight. These ducks were among the numerous shorebirds and waterfowl that prompted Eleanor S. Carnell, a Wilmington artist and homemaker, to study the winter birdlife of a tidal estuary near her home.

Winter Birds of a Small Tidal Estuary in Southeastern North Carolina

ELEANOR S. CARNELL

There have been few studies of the winter bird life of the small tidal creek estuaries that occur along the southern Atlantic Coast. My home near Wilmington, New Hanover County, N.C., is on the south shore about midway up Pages Creek. This estuary covers approximately 30 acres. The section I observed was 0.4 of a mile long, and 0.25 of a mile wide at the downstream end. At my vantage point it was 0.12 of a mile wide, but narrowed to less than 50 yards upstream. Pages Creek opens to the Atlantic Intracoastal Waterway about 1 mile from Mason Inlet (Fig. 1). The tidal range of 4 feet insures that this estuary is mostly flooded twice daily and that twice daily extensive mud flats and oyster bars are exposed by the ebbing tide (Fig. 2 and 3). The primary vegetation of the marshes is *Spartina alterniflora.* Clams are abundant as are Blue Crabs (*Carcinus maenas*), Fidler Crabs (*Uca prignax*), and shrimp. Mullets (*Mulgie cephalus*), Spots (*Leiostomus xanthurus*), Pinfish (*Lagodon rhomboides*), Summer Flounder (*Paralichthys dentatus*), Bluefish (*Pomatomus saltatrix*), Blowfish (*Sphoeroides maculatus*), and many schools of small fish are among the available food. The focus of this study is the cyclic use of the mud flats and the creek margins at low tide and of the marsh waters at high tide.

METHODS

This study was conducted from January through March in both 1981 and 1982. Observations were made with binoculars and spotting scope from an elevated wooden pier extending into the estuary immediately behind my house. At least 4 or 5 days each week from January thorugh March, identified birds were recorded along with the tidal stage, bird activity, and location within the estuary. The gull flocks tend to use the part of the estuary farthest from my observation point, sometimes making specific identification impossible. Thus, all gulls are lumped, as also are the terns and the two yellowlegs.

To allow for a semi-quantitative evaluation of the resulting data (Table 1), I considered species that averaged more than 5 birds per observation period to be abundant, 1 to 5 birds were considered common, 0.1 to 1 uncommon, and less than 0.1 birds per period were considered sparse or rare.

The tidal cycle was broken into four periods: high ebbing (the first half of the falling tide), low ebbing (the last half of the falling tide), low rising (the first half of the flooding tide), and high rising (the last half of the flooding tide). Determinations were made by reference to local tide tables and from personal knowledge of the estuary.

RESULTS

Twenty-three species of birds in addition to gulls and terns were observed in the Pages Creek estuary ecosytem during the two winters of this study (Table 1). Most abundant was a mixed-species group of gulls, consisting primarily of Herring (*Larus argentatus*) and Ring-billed (*L. delawarensis*) Gulls, which regularly fed in the tidal

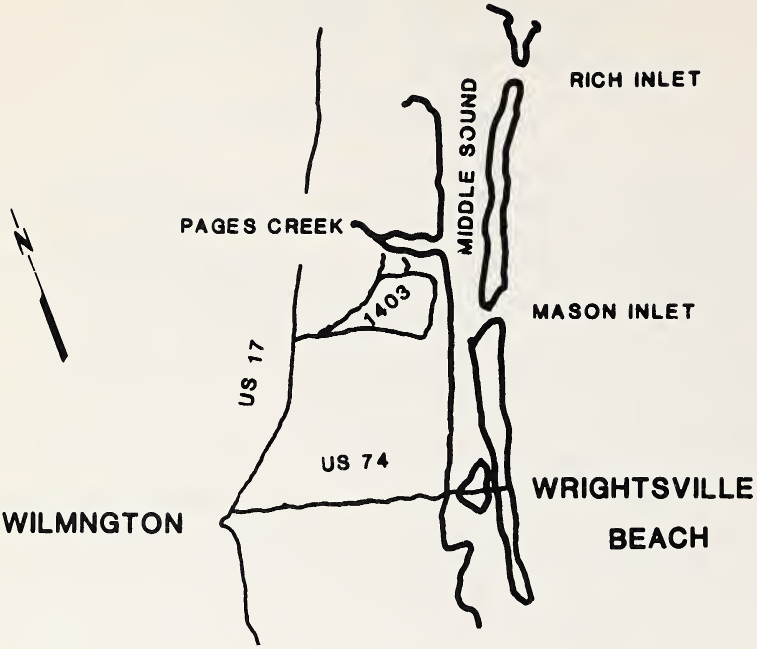

Fig. 1. The study area is about midway the Pages Creek estuary, just west of Middle Sound between Rich Inlet and Mason Inlet, New Hanover County, N.C.

creek that bisects the study area. Dunlin (*Calidris alpina*), Brown Pelicans (*Pelecanus occidentalis*), and Great Blue Herons (*Ardea herodias*) were also common and present regularly thorughout the study. All other species occurred in smaller numbers or at irregular intervals.

Figure 4 shows the relationship between tidal stages and the total numbers of birds of all species present. This graph clearly demonstrates that more birds use Pages Creek estuary on the low ebbing tide than at other stages in the tidal cycle. Some species, however, varied from this pattern, notably the flocks of gulls, which were usually most numerous on the high ebbing tide.

Birds that fed on the exposed mud flats and in the shallow water were the small shorebirds and the American Oystercatchers (*Haematopus palliatus*). The small shorebirds, Dunlin, Short-billed Dowitcher (*Limnodromus griseus*), Black-bellied Plover (*Pluvialis squatarola*), and yellowlegs (*Tringa* sp.) flew in on the ebbing tide to feed. The yellowlegs bobbed about with nervous motions and the Short-billed Dowitcher and Black-bellied Plover moved more slowly in their probing for food. Dunlin darted rapidly along the edge of exposed oyster beds and in the shallow water of the mud flats in their search for food. Oystercatchers fed on the oyster bars. Shorebirds arrived on the low ebbing tide and left as the tide began to flood.

The Great Blue Heron was the most common long-legged wader and was present during the entire tide cycle. Most often it was a solitary figure, head hunched in

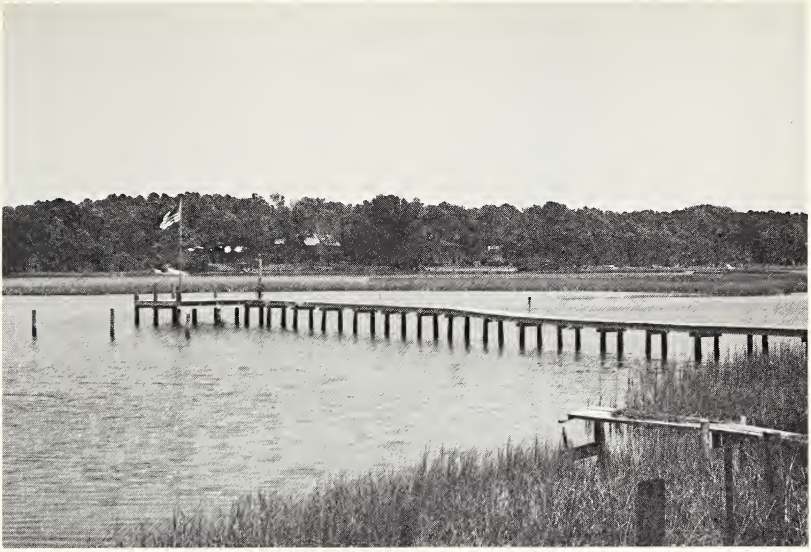

Fig. 2. Pages Creek study area at high tide.

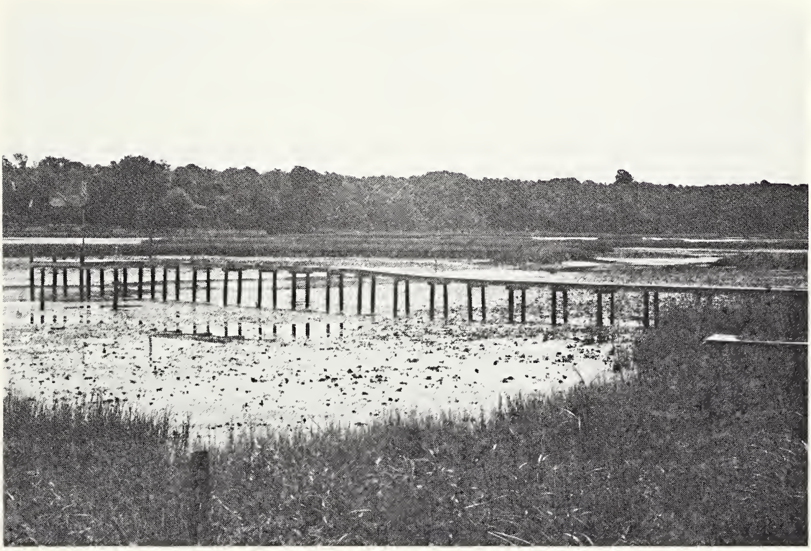

Fig. 3. Pages Creek study area at low tide.

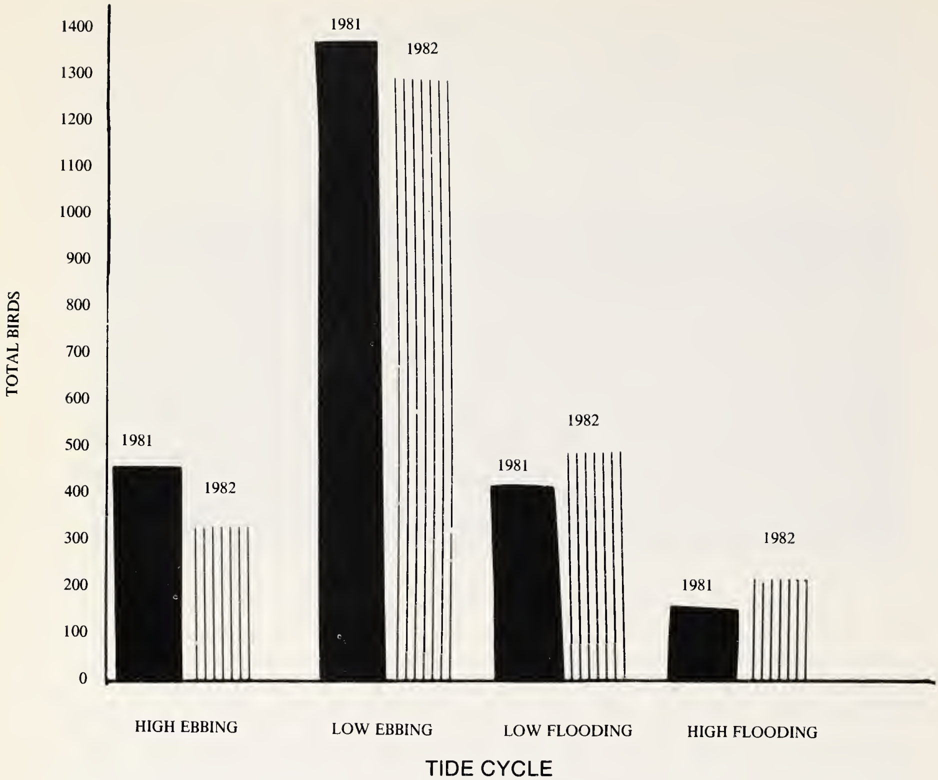

Fig. 4. Abundance of birds in the Pages Creek estuary over the tidal cycle, January through March, 1981 and 1982.

shoulders, backed against the marsh grass. When the mud flats began to show, the heron moved to the oyster bar or the water's edge, to fish and feed.

The Great Egrets (*Casmerodius albus*) sometimes came in flocks, but often just two or three together. These waders also stood against the marsh grass. As the tide ebbed, they changed position to feed and fish. Infrequently, the Great Egrets roosted in the trees by the banks of the creek.

Only one Little Blue Heron (*Egretta caerulea*) was present at a time. It regularly fed along the creek margins in the shallow water and at the edge of the oyster bars as the tide began to ebb.

Green-backed Herons (*Butorides striatus*), Snowy Egrets (*E. thula*), and Tricolored Herons (*E. tricolor*) were sparse. The Green-backed Heron hunted from the water's edge, leaning forward to strike at passing prey. Sometimes it moved farther into the pools of water. The Snowy Egret and the Tricolored Heron fed on the mud flats, darting back and forth in the shallow water.

The White Ibis (*Eudocimus albus*) always came in flocks. When the tide was quite low and the mud flats fully exposed, they fed by probing in the mud. They have not reappeared on Pages Creek since the winter of 1981.

TABLE 1. Abundance of winter birds of Pages Creek, New Hanover County, N.C.

	Total birds observed		**Observed per day**			**Abundance category**
Species	1981	1982	1981	1982	Average	
Gull species	807	1232	12.42	14.37	13.50	Abundant
Hooded Meganser	418	214	6.43	2.49	4.19	Common
Dunlin	152	178	2.34	2.07	2.19	Common
Brown Pelican	78	194	1.20	2.26	1.80	Common
Great Blue Heron	77	85	1.18	0.99	1.07	Common
White Ibis	145	0	2.25	0.00	0.97	Uncommon
American Oystercatcher	40	104	0.62	1.21	0.95	Uncommon
Mallard	16	97	0.25	1.13	0.75	Uncommon
Tern species	34	63	0.52	0.73	0.64	Uncommon
Short-billed Dowitcher	52	39	0.80	0.45	0.60	Uncommon
Great Egret	25	55	0.38	0.64	0.53	Uncommon
Yellowlegs species	50	25	0.77	0.29	0.50	Uncommon
Little Blue Heron	24	9	0.37	0.10	0.22	Uncommon
Osprey	9	4	0.14	1.05	0.09	Sparse
Red-breasted Merganser	6	7	0.09	0.08	0.09	Sparse
Black-crowned Night-Heron	0	7	0.0	0.08	0.05	Sparse
Black-bellied Plover	2	3	0.03	0.04	0.03	Sparse
Snowy Egret	3	0	0.04	0.00	0.02	Sparse
Wood Duck	3	0	0.04	0.00	0.02	Sparse
Green-winged Teal	2	0	0.03	0.00	0.01	Sparse
Tricolored Heron	0	2	0.00	0.02	0.01	Sparse
American Bittern	1	0	0.01	0.00	0.01	Rare
Northern Harrier	1	0	0.01	0.00	0.01	Rare
Green-backed Heron	0	1	0.00	0.01	0.01	Rare

Herring, Ring-billed, and Bonaparte's (*L. philadelphia*) Gulls were present in great numbers throughout the study. Laughing Gulls (*L. atricilla*) did not appear until mid-March. Approaching storms produced hundreds of gulls in the creek area. They came in on all tides: Herring and Bonaparte's Gulls on the high ebbing tide; Ring-billed Gulls more frequently on the low tides. They fed from the oyster bars, from a swimming position, and by probing in the mud.

Forster's Terns (*Sterna forsteri*) appeared in small numbers with the gulls. They hovered and dove for their food. They fed most commonly on the low tides. Common

Terns (*S. hirundo*) were absent most of the winter. Two early spring migrants appeared in March.

Brown Pelicans came in small numbers—sometimes a single bird, or as many as six. They flew high and dove into the water to feed. The pelicans sometimes flew in formation and dove together. They loafed on the oyster bars or preened themselves on the pilings beside the dock.

The Osprey (*Pandion haliaetus*) arrived punctually each year about 1 March. This bird flies very high above the creek, hovers, and then dives for its food. The Ospreys nested in a bare tree across the creek from my house.

The most numerous ducks of Pages Creek were the Hooded Mergansers (*Lophodytes cucullatus*). They came in numbers from a few to groups of 30 to 50. Red-breasted Mergansers (*Mergus serrator*) were sparse. Mergansers dove for their food, completely submerging and coming to the surface some distance from this point. They came most frequently on the high and low ebbing tides.

Several Mallards (*Anas platyrhynchos*) were present during the entire tidal cycle but most frequently on the low ebbing tide. They fed on vegetation by up-ending in shallow water. They may have been feral birds.

Rare visitors were a Green-winged Teal (*A. crecca*) and three Wood Ducks (*Aix sponsa*), all present on the high tides.

Another rare visitor was an American Bittern (*Botaurus lentiginosus*) seen sitting in a frozen position in the marsh grass with its bill pointed skyward.

The Northern Harrier (*Circus cyaneus*) was seen once hovering over the marsh grass, but the marshes within the study area apparently are not extensive enough to attract this species regularly.

CONCLUSIONS

In winter, birds are most numerous on Pages Creek on the low ebbing tide (Table 1). The abundance of birds in the study area varies according to the food resources available at the different stages of the tide cycle. The greatest numbers of birds are present during the low ebbing tides because the low water exposes extensive mud flats and oyster beds. Although some shorebirds and long-legged waders retreat to the marshes and shallow waters at the edges of the creek when the flooding tide covers the mud flats and oysters beds, most leave the estuary. Bird activity reaches its low point during the high flooding tide, but as the high tide begins to ebb, gulls and other species that dive for fish or feed from the surface of the water become numerous in the estuary.

322 Pages Creek Drive, Wilmington, N.C. 28405

Six for the New Year

JACK W. GREENE

Bobby Mize and I participated in the Christmas Bird Count of Stanly County, N.C., to lend support to Morrow Mountain State Park, which has coordinated the count for several years. We had been assigned the Yadkin-Pee Dee River section for the count. Having gone canoeing over the Christmas holidays in 62°F weather, I was looking for a good reason to be back on the water. I had been the seasonal naturalist at Morrow Mountain the summer of 1977, with free access to a Wildlife Commission canoe, which I used for exploring as many marshes and creeks as I could find. So I knew the area. Another reason I was eager to go was that there had been reports of Bald Eagles in this area for the past several winters. I had seen Golden Eagles in the wild, but never Bald.

Friday and Saturday, the last day of 1982 and the first day of 1983, were identical. Both were heavily overcast with no wind, and threatening rain that never came. We put our canoe in at the Alcoa Boat Access Area on the Falls Reservoir and paddled down the lake to the Falls Dam, got out, and walked around the fence to the top of a small rock outcrop to look down on Lake Tillery. We located our first raptor of the day, a mature Red-tailed Hawk, sitting in a tree on Morrow Mountain State Park's lake shore. I always check this outcrop for a small red sedum called *Diamorpha smallii.* This is the first place it was ever found. John Small found it here in 1894 and it has been found on many other rock outcrops since then, but its "type locality", as it is called by botanists, was destroyed in 1919 with the construction of the Falls Dam by Alcoa. Still, I always check the area, hoping to find the sedum there again. The Falls Dam not only destroyed the *Diamorpha* population, but also what is regarded as the largest waterfalls in the state, if not the entire southeast, in terms of volumes of water. The Yadkin River went from 1800 feet wide at Badin to 60 feet as it gorged its way through the Narrows for 3 miles before dropping over a rhyolite dike. The roar of what was known as The Great Falls of the Yadkin could be heard 4 miles away.

After checking down-river, Bobby and I paddled up the western shoreline of the Falls Reservoir. The west bank belongs to Alcoa and the east to Uwharrie National Forest. We were checking for birds that would come to the water's edge to drink and sometimes feed. Titmice, chickadees, woodpeckers, sparrows, and goldfinches could be seen and heard with ease as we glided silently by. Suddenly a large bird took off from the eastern shore, just ahead of us. We had been upsetting the local population of Great Blue Herons all morning, but this was different. We followed the dark bird's powerful flight up-river and across the lake with our binoculars.

"Rough-legged Hawk."

"No, I don't think so. It's dark-breasted all right, but it's the wrong habitat. Rough-legs are open-prairie birds. I've only seen them in large open fields."

"Look, he's trying to take the perch from another large bird."

Having failed to dislodge the second bird, the first one flew on up the river and landed on the west shore about a mile away. We started angling the canoe across the river toward the second bird, trying to get close enough to identify it. Bobby had his spotting scope mounted on a gun stock in the bottom of the boat. "Let me get my scope," he said.

"I'm afraid the bird might think it's a gun and fly off before we find out what it is. Go ahead, but move slowly. Can you see him in the scope? I can make out a whitish head. He's getting ready to fly! No, he's just turning around."

"Awwh."

"What is it?"

"His tail is pure white and so's his head. It's a mature Bald, which means that the first one we saw was an immature Bald."

"Give me the scope; let me see."

"Look, on the left, there's a third one."

About 80 yards away, directly off our port side, sat another immature Bald Eagle.

"I'm getting my camera out. Let's see how close we can get to the immature before he flies." We were both grinning from ear to ear.

"No one's going to believe we saw three Bald Eagles in one day. No one . . ." That's when the fourth one flew over our heads. It had come from down-river, behind us, so we didn't see it until it had passed over, flying with slow, powerful strokes about 150 feet off the water. It also went up-river and landed on the west side.

"The immature's taking off."

"So's the mature one."

We continued paddling up-river watching the flying eagles until they landed again. The immature, which had been perched closer to us, joined another immature and a subadult whose head and tail were a smoky gray, but probably would be white next year. Bald Eagles require 4 to 5 years to become fully mature, breeding adults.

"How many eagles do you see?"

"I see five."

"I see five also. Describe where you see them."

"Three together on the left in the poplar."

"Yes, I see those."

"One on the left, way up-river at the bend."

"Yes, I see that one also."

"One silhouetted against the sky at the tallest point on the hill to the left of the one at the bend."

"I didn't see that one. Now I see six eagles."

"Where is your sixth one, the one I don't see?"

"I'm not believing this. LeGrand won't either. [The standard joke at Iredell County bird counts is that if you see anything rare, don't bother to put it down because Harry won't believe you anyway.] All right, let me describe the positions for the six I see. Three together in the poplar, one at the bend, which makes four. One silhouetted against the sky at the high point, which makes five, and the sixth one is below the one silhouetted in the trees. I believe it's the mature one we saw earlier."

"Yes, I see it. Now I see six also. Four immatures, one subadult, and one adult."

"Right. That's what I see. Put them on the bird count list. What a way to start the New Year!!!"

TABLE 1. Summary of Bald Eagle sightings on the Yadkin-Pee Dee River system in North Carolina, January through May 1983.

Date	Birds	Observers
1 January	4 immatures 1 subadult 1 adult	Greene and Mize
12 January	5 immatures	Paul Hart, Bill Brokaw, Bob Mayer
13 January	2 adults 1 subadult	Dick Brown
15 February	3	Greene (morning)
	3	Greene and Wade Stubbs (afternoon)
27 Feburary	3	Greene with Ann Taylor
12 March	1 immature	Mize and Betty Boyd Sides

ADDENDUM

Table 1 summarizes Bald Eagle sightings from the Yadkin-Pee Dee River system near Badin, N.C., during the winter of 1983. Included are reports submitted to Harry E. LeGrand Jr. for use in "Briefs for the Files" and *American Birds.* On 23 May all observed raptors were soaring. If any eagles were still present, they were too high to be seen or were not in the immediate area.

Jack W. Greene is Western District Naturalist for the North Carolina Department of Parks and Recreation. His address is Duke Power State Park, Route 2, Box 224-M, Troutman, N.C. 28166.

Backyard Birding

... with Gail T. Whitehurst

Man Versus Rodent Versus Owl

This morning (29 March 1983) my daughter, Mrs. Ray Adkins, phoned to tell me that a Great Horned Owl had fluttered down from the high pines in her garden. Earlier, it had hung from a branch, upside down, by one claw. She had called the South Carolina Wildlife Department. Before anyone arrived, I went over to see the bird. It was sitting in a corner of her shaded lot, wings spread out, rather like a cloak. Soon a man and woman from Wildlife arrived. The man was wearing something like a welding glove, and they brought with them a large corrugated air-freight box.

At their approach, the owl promptly flew over a 6-foot fence and into a neighbor's dog pen. The young setter and Doberman-Pinscher therein did not seem to notice the owl. My daugher gave the man a bedspread, which he used to capture the owl. It was placed in the box with some difficulty as the sharp talons had become entangled in the spread. They took the owl to the Riverside Zoo for examination by a veterinarian, who determined that it had probably eaten a poisoned animal, which affected its central nervous system. The owl lived only one day at the zoo.

Being an amateur bird watcher, I had something interesting to add to my life list, although I must say it is definitely a situation of being watched by very colorful eyes when you are near such a bird.—DAVID J. ABRAHAM, 3128 Woodsen Circle, West Columbia, S.C. 29169

A Mating Ritual Totem?

Here are some new (for me at least) observations in the old habit of flickers pecking on metal chimney covers. On a recent trip to Tulsa, Oklahoma, I watched a pair of Yellow-shafted (Northern) Flickers cavort around their nest in an old willow. The male would fly to a limb directly in front of the hole, rather softly announcing his arrival each time. The female immediately came out of the hole and perched on a small limb (non-passerine?) to its left. The pair then copulated and the male immediately flew to a nearby chimney where he "drilled" the metal pot before flying off. I watched this pattern being repeated at least seven or eight times a day for three consecutive days, beginning as early as 0630 and ending as late as 1830. I hardly know what conclusions might be hazarded, but the routine was fascinating, never varying at all. The male did not even alter his chimney, although several were equidistant to the hole and another even on the same house. I wonder how many other species incorporate some sort of totem in the mating ritual?—A. LEIGH DeNEFF, 1623 Park Drive, Raleigh, N.C. 27605

Living Dangerously!

Today (30 October 1982) I was walking on our apartment grounds. We have 155 units spread widely, with large paved areas for parking, much grass, plenty of blooming camellias—and nothing remotely resembling woodland.

Over the paved street, low and 10 feet from my face, came a Sharp-shinned Hawk, chased by three Starlings. The rapid maneuvering went on before me for several seconds. I know that Cooper's and Sharp-shinned Hawks can be similar in size, but this hawk was the smallest accipiter I've ever seen, not much bigger than the Starlings.—LOUIS FINK, L-6 Tau Valley Estates, Rocky Mount, N.C. 27801.

[Note: It is not uncommon, especially in the fall, to see a Sharp-shinned Hawk or a Cooper's Hawk being mobbed in the air by a large flock of European Starlings, but this sounds most unusual.—GTW]

Whitehurst's Laws of Backyard Birding

Nearly everyone is familiar with at least some of the famous Murphy's Laws—things that can foul up most any undertaking you plan. Well, I have come up with a few laws relative to backyard birding. These have turned up over and over again. Perhaps you can add something to the list.

1. Never say "never." Just as soon as you tell another birder that such and such a species is never seen feeding on the ground (or in the trees), you will see it doing that thing.

   I told a friend once that while I often see Fish Crows perch on the tall transmission line tower near my home, American Crows never do. This winter, long before the return of Fish Crows, the American Crows in the area frequently perched on the tower.

   I have always said that Mourning Doves never eat anything but grain, birdseed, or fruit. This winter, I observed one eating bread!

   I used to join with the many other observers in saying that House Sparrows do not eat sunflower seed. They do! They will sit in a feeder that has only sunflower seeds and prevent any other birds from partaking.
2. Just as you are about to locate a new, unusual, or interesting bird in a nearby tree, your neighbor will walk over and begin a conversation—and the bird disappears.
3. While you are studying a "different" bird in the driveway, a car will turn in and frighten it away before you are sure of the field marks.
4. Before you can decide what the new bird on your feeder is, someone or something will frighten it away.
5. When you go to investigate the strange bird call you just heard, along comes a helicopter or a garbage truck, or someone starts up a power mower, drowning out the sound.
6. On a bitterly cold, blustery winter day, when you can hardly stand to linger outside to watch birds, along comes a Sharp-shinned Hawk. All the birds dive for cover and remain out of sight for at least 10 minutes!—GAIL T. WHITEHURST, 1505 Brooks Avenue, Raleigh, N.C. 27607

CBC Roundtable

... with Louis C. Fink

Birding with a Screech Owl Tape

One of those rare days in mid-June, which make the heart leap, I joined a nature walk sponsored by Raleigh's Parks and Recreation Department at Durant Nature Park. Over 40 adults showed up, so Don Tarbert and John Conners divided the crowd in two. The morning began with a small exhibit of skins and delightful, informal comments by Don.

Both leaders carried tape recordings of a Screech Owl, and we stopped to play them in cleared spaces in the woods. The results were a fine collection of summer residents: catbirds, chickadees, both tanagers, several flycatchers, Indigo Bunting, Carolina Wren, a lingering Palm Warbler, and so on. A nesting box with young Tufted Titmice was available for close inspection.

Durant Nature Park is a former Boy Scout camp, and worth a visit at any time. It's on US 1 about 5 miles N of the Beltline. Turn left on Durant Road just beyond Cheviot Hills Golf Course.—LCF

Newspaper Gleanings

Siberian Crane eggs have been shipped from Wisconsin to Moscow, to be placed in nests of wild cranes in the Soviet Union. Scientists hope to save one of the world's rarest birds. Out in California, condor eggs taken from the wild have hatched, and scientists are delighted that one chick is a female. Alan Poole, a student of Ospreys, says these birds are coming back, 10 years after DDT was banned.

The Smithsonian Institution in Washington is selling for $1 a bird silhouette designed to prevent birds from flying into large glass doors and windows.

Moses Ashley Curtis: Early Carolina Naturalist

"Moses Ashley Curtis (1808-1872): Contributions to Carolina Ornithology" is the title of a paper by Mark and Sallie Simpson in the April 1983 issue of *The North Carolina Historical Review.* An educator and Episcopal minister, Curtis is well known for his outstanding contributions to botany; however, his work on birds, mammals, reptiles, and amphibians has been, for the most part, forgotten. The Simpsons provide considerable evidence that Curtis was the first modern student of North Carolina animal life. Two appendices present Curtis's list of birds for North Carolina (including such intriguing entries as Ivory-billed Woodpecker, Whooping Crane, Purple Sandpiper, and Esquimaux Curlew) and several species accounts that were written for a proposed state zoology. Although the North Carolina Geological and Agricultural survey had published Curtis's two volumes on the plants of the state, one before the Civil War and the other in 1867, the legislature refused to appropriate funds for the book on animals, which apparently never was completed. Bird students with a bent for history will find the Simpsons' paper fascinating.

Further Information on Tropicbirds in the Carolinas

In a recent paper David S. Lee and E. Wayne Irvin (Chat 47:1-13) summarized the tropicbird records for North and South Carolina and expressed concern about the accuracy of identifications made before bird students became aware that two very similar tropicbird species (White-tailed, *Phaethon lepturus*, and Red-billed, *P. aethereus*) occur in the region. The authors have received two written responses to their paper, both of which are excerpted below. The first is a letter from D. Archibald McCallum, one of the cited observers, providing further details of his experience with a storm-blown bird found alive at Dillon, S.C., in October 1954. The second is a summary of unpublished information regarding several sightings reported without details in "Briefs for the Files" during the years (1977 to present) that Harry E. LeGrand Jr. has been editor of this department in *Chat.* One report from more than 100 miles offshore is here mentioned in print for the first time. Lee has viewed John Bazuin's slides of this bird and concurs in its identification as a White-tailed Tropicbird.—EFP

Your paper in *The Chat* ... has inspired me to try to recall more details of the Dillon, S.C., record of October 1954. The bird was found by the Walters family (Mr. and Mrs. Graham Walters Sr. and Graham Jr.) in their chicken coop. They brought it to my family, because we were known to be interested in birds. I remember the bird lying on the ground, my father retrieving the Peterson eastern field guide and almost immediately finding the line drawing and identifying it as a "yellow-billed" tropicbird. I am certain that this bird had no tail streamers. It was assumed at the time that it had lost these in the storm. A wing was stretched out and all were impressed with its length. The Walterses took the bird back home, hoping to nurse it back to health and to release it. At that time we did not own a copy of *South Carolina Bird Life,* and were too unsophisticated about the ways of ornithology to think of preserving the specimen. Several years later I corresponded with E.B. Chamberlain about the record, and in the fall of 1958, on a CBC trip in Charleston, Rhett Chamberlain asked us to see if the skeleton could be exhumed. As I recall a house had been built over the place the bird was buried, and so exhumation was out of the question.

My recollection is that the bill of the bird was yellow and that there was no thin black barring on the back, but my mental image of the bird is undoubtedly influenced by the many illustrations I have seen since, especially the Peterson drawing, which I must have looked at hundreds of times as a boy. Moreover, I was only nine years old at the time.—D. ARCHIBALD McCALLUM, Route 2, Box 3, Thoreau, New Mexico 87323

Because there have been a moderately large number of previous records for the White-tailed Tropicbird in Carolina waters, I have not published descriptions of them in Briefs. However, the Lee and Irvin paper has stimulated me to go through my correspondence.... The following is a list of sightings of tropicbirds, *all* reported as White-tailed, that I have received since 1977. All have been published in *Chat.* For each record, I mention whether or not a description was provided; if so, excerpts have been included in quotes.

1. 2 September 1979; Mike Tove et al. (Chat 44:45). Tove's photo of a White-tailed was published in Lee and Irvin (Chat 47:8).
2. 3 September 1979; John Fussell (Chat 44:45). No description was provided. However, Fussell says: "Due to swell coming in from side, I didn't see it well through binoculars, and I didn't identify it as a White-tailed until I'd looked at White-tailed and Red-billed specimens in Raleigh."
3. 6 September 1979; Bill and Margaret Wagner, Johnnie Payne (Chat 44:92). Bill Wagner submitted a half-page description. In addition to noting the long, streamer tail, he stated: "we saw yellow bill and noticed the head was all white except eye line which showed to extend back of eye (not long as in Red-billed). The wings [when raised by bird sitting on water] were black-tipped with black open V formed by pattern extending from bend of one wing down to rump and back up to bend of other wing."
4. 5 September 1979; Richard Rowlett (Chat 44:69). No description.
5. 27 September 1979; Rowlett (Chat 44:69). No description.
6. 23 May 1980; Vernon Waters (Chat 44:113). Mentioned as an adult, but no description provided.
7. June 1980; Duncan Dawkins (Chat 45:19). John Fussell submitted the report, mentioning that Dawkins "saw one circle around over the boat he was on.... He described it well." However, Fussell's letter did not actually include a description.
8. 5 September 1981; John Bazuin (Chat 46:47). He provided a half-page description, including: "fairly large, all-yellow bill; ... black bar extending diagonally forward across the upper wing surface from the scapulary [sic] area to the wrist." [NOTE: Another adult White-tailed was seen by Bazuin 176 miles E of Jarvisburg, N.C., on 13 September 1981. However, the sighting was not published because it occurred over 100 miles from shore, the unofficial limit of North Carolina waters (from an ornithological standpoint). He submitted two slides of this bird to me. The yellow bill and black diagonal bar on the wing clearly identify it as a White-tailed.]

Of the sight records above, [only the first and third were included in] the table of occurrences of tropicbirds in Lee and Irvin (Chat 47:6-8). I assume that records three and eight can now be added to their list of positively identified White-tailed Tropicbirds in the Carolinas.—HARRY E. LeGRAND JR., 331 Yadkin Drive, Raleigh, N.C. 27609

The 6 September 1979 and 5 September 1981 records do not alter the known period of occurrence for the White-tailed Tropicbird in the Carolinas. Addition of Bazuin's far-offshore photo record moves the latest date in our region from 11 September (as reported by Lee and Irvin) to 13 September. The additional information

(Continued on Page 75)

General Field Notes

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Bar-tailed Godwit Found at Portsmouth Island, N.C.

JOHN O. FUSSELL III
1412 Shepard Street
Morehead City, N.C. 28557

On 22 September 1982, at approximately 1600, I discovered a Bar-tailed Godwit (*Limosa lapponica*) feeding on the sand flats (locally called "The Flats") at Portsmouth Island, Carteret County, N.C., adjacent to Ocracoke Inlet. On this afternoon and the next, I studied the bird for a total of more than 2 hours. Fortunately, I had in hand for immediate reference the very helpful *Guide to the Identification and Ageing of Holarctic Waders* (A.J. Prater, J.H. Marchant, and J. Vuorinen, 1977, British Trust for Ornithology Field Guide No. 17).

I was using 10X binoculars and often approached within 50 feet of the godwit. Thus, I had excellent views of it. It associated primarily with Willets (*Catoptrophorus semipalmatus*) and Short-billed Dowitchers (*Limnodromus griseus*), but also sometimes stood next to Marbled Godwits (*Limosa fedoa*), a Long-billed Curlew (*Numenius americanus*), and other speicies, affording excellent size comparisons. The Bar-tailed Godwit could be picked out at a long distance because of its distinctive silhouette—long, very slightly recurved bill and slender body but relatively short, stocky legs. The bird "stood shorter" than a Willet. It was in winter plumage and its general coloration was similar to that of the Willets, not at all like that of a Marbled Godwit. The basal half of the bill was pink; the distal half was black. The legs were black or blackish. The lower back, rump, and upper tail coverts were white with dark barring visible on the rump and upper tail coverts. The rectrices were largely brownish, tipped with white. The axillars were whitish with a sparse amount of dark barring or speckling. The presence of the largely whitish lower back, rump and axillars is consistent with the bird being of European origin, rather than of Asian or Alaskan origin (see Prater et al., 1977). The godwit called once. That call was tripled, and in quality was similar to a Willet's call.

The Bar-tailed Godwit is very rare but regular along the East Coast of the United States. There are three previous records for North Carolina, all of which were made at Pea Island National Wildlife Refuge: 31 August to 1 September 1971, 14 October 1974, and 21 September 1975 (Chat 41:48,49; Amer. Birds 29:41). I photographed the

Portsmouth Island godwit, and several color slide duplicates have been deposited in the North Carolina State Museum of Natural History.

The godwit was also seen on 23 September by Pam Stuart. Wayne and Fran Irvin found the bird on 2 October, 1.5 miles SW of the September sightings. On 10 October, at midday, the godwit was again adjacent to Ocracoke Inlet, and was seen by Bill and Pat Brokaw, Larry Crawford, John Fussell, Bob Holmes, and Heathy Walker. Later, that afternoon, Derb Carter and Lance Peacock found the bird in the same area. As far as I know, these were the only observations, although others searched for the bird in early October. I covered the flats thoroughly on 24 November, and did not see the godwit. Prior to the initial observation, I had censued the shorebirds on the flats on 6 and 8 September. If the bird did arrive at Portsmouth between 8 September and 22 September, it may be of interest that no extreme weather occurred during that period, although there were several days with moderate northeasterly winds.

The location of the sightings, the Portsmouth Flats, is a significant natural area within Cape Lookout National Seashore. These flats are vast (ca. 3 square miles), and consist of sections that are primarily sand flats and sections that are primarily mud flats. They provide a major feeding area for migrating shorebirds. Unfortunately, this rich shorebird area has been generally inaccessible to bird students. However, recently a transportation service (for tourists wanting to visit the historic Portsmouth village) from Ocracoke has been developed.

Observation of the Bar-tailed Godwit was made while I was conducting, for the Cape Lookout National Seashore, censuses of fall shorebirds using the Portsmouth Island flats. This work was supported by the Volunteer in Park Program. Appreciation is extended to Claudia Wilds for reviewing the manuscript.

Savannah Sparrows on Territory in Alleghany County, N.C.

HARRY E. LeGRAND JR.
331 Yadkin Drive
Raleigh, N.C. 27609

The Savannah Sparrow (*Passerculus sandwichensis*) has been slowly expanding its breeding range southward in recent decades, and in the 1970s they had been recorded in summer in a number of localities in the Virginia mountains. By 1980, the species had been noted in Virginia south to Carroll County (Scott 1979), Washington County (Scott 1975), and Smyth County (Scott 1975); and in Hawkins County, Tennessee (Alsop 1977). Hawkins County is at the same latitude as the northern tier of counties in North Carolina, whereas the southern locations in Virginia are only 15 to 20 miles from the North Carolina border. Thus, the possibility existed that Savannah Sparrows occur in summer in the mountains of northern North Carolina. Nonetheless, the species was not detected on the Ashe County, N.C., Breeding Bird Foray in 1979 (LeGrand and Potter 1980), nor had it ever been detected in the breeding season in the Carolinas.

On 14 June 1983, I surveyed roadside habitats in the northeastern portion of Alleghany County, N.C., looking specifically for open country birds, as the county contains an abundance of pastures and fields. I concentrated on listening for Savannah Sparrows, Henslow's Sparrows (*Ammodramus henslowii*), and Bobolinks (*Dolichonyx oryzivorus*). Though I suspect that Bobolinks nest somewhere in the county, because abundant habitat seems present, I found neither of the last two species. However, I did find singing Savannah Sparrows at three locations. The first was at the community of Hooker, 5.3 miles E of Sparta. The second was along SR 1426, 2.7 miles E of Sparta. The third location was 2.0 miles SE of downtown Sparta on SR 1121. The elevations at these sites range from 2750 to 2900 feet (900 to 935 m).

All three individuals were first noted by their songs, and two were subsequently seen, singing from either posts or wires of fences. The habitats were basically similar —ungrazed or lightly grazed pastures in a moderately hilly setting. These pastures contained only grasses, with no forbs or saplings of any kind; grasses were approximately knee-height (0.3 m). The main associates of the Savannahs in these pastures were Eastern Meadowlarks (*Sturnella magna*) and Grasshopper Sparrows (*A. savannarum*); other associates were Red-winged Blackbirds (*Agelaius phoeniceus*) and Vesper Sparrows (*Pooecetes gramineus*).

The Savannah Sparrows were obviously on territory, but I was unable to detect further evidence of nesting. Nevertheless, it seems certain that the species is now established in the breeding season in the county, and other Savannahs may well occur there, as suitable habitat is widespread. Observers should look for additional sites for the species in the northwestern corner of the state, especially in the western half of Alleghany County and in eastern Ashe County. It is expected that conclusive evidence of breeding will be found shortly.

LITERATURE CITED

Alsop, F.J., III. 1977. Savannah Sparrow (*Passerculus sandwichensis*) extends its breeding range into upper eastern Tennessee. Amer. Birds 31:1101-1102.

LeGrand, H.E., Jr., and E.F. Potter. 1980. Ashe County Breeding Bird Foray — 1979. Chat 44:5-13.

Scott, F.R. 1975. The Mount Rogers Foray of June 1974. Raven 46:75-87.

Scott, F.R. 1979. The Rocky Knob Foray of June 1976. Raven 50:3-11.

Additional Information on a Historical Breeding Record of the Lark Sparrow in North Carolina

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Lark Sparrows (*Chondestes grammacus*) are rare to uncommon and erratic breeding birds in the most easterly portions of their range (Baepler 1968, Peterson 1980). The A.O.U. *Check-list* (1957) and Baepler (1968) state the Lark Sparrow breeds in western and central North Carolina (Cranberry, rarely to Raleigh). I have been unable to find a published record of Lark Sparrows breeding at Cranberry, which is in central Avery County. *Birds of North*

Carolina (Pearson et al. 1942) lists but one breeding record, that of a deserted nest with four eggs found by H.H. Brimley at Raleigh, Wake County, on 24 July 1890. I have located this latter record at the Museum of Comparative Zoology, Harvard University, where it is listed as Lark Sparrow egg set No. 6658. The only other substantiated breeding record in North Carolina is for Richmond County (McNair 1982).

The following label, handwritten by H.H. Brimley, accompanied the egg set and is quoted here in its entirety:

> "1/4 Lark Sparrow (?). July 24, 1890. Raleigh, N.C. Nest on ground, in depression, among small bunch of weeds in open, on high ground. The field where found is used as a pasture and growth is kept cropped close, scattering weeds being left standing in places. Field bounded by pines, mixed woods, vineyard and a small stream. Eggs dry and hard, apparently deserted at least a week, probably more. Incubation seemed to have commenced but if commenced, only quite slight. Nest taken on above date by negro fieldhand who gave me foregoing information regarding where found. I know the field well, it being less than a mile from here.
>
> "Previous record of Lark Sparrow at Raleigh, one taken and another one seen, Aug. 19/1889, one-half mile from where above nest was taken."

The four eggs were placed in a cup-shaped nest. The outer nest material was composed of grasses and weed stems. The nest lining was composed of fine grasses and rootlets. The four eggs were ovate and creamy white, lightly scrawled with chocolate and gray on the wide end plus a few brown spots. Three of the four eggs measured 22.5 x 16.5 mm; the other egg measured 22.0 x 16.5.

The breeding habitat, nest placement, nest construction, and eggs (shape, size, color, and markings) of this Lark Sparrow nest record are in agreement with Baepler (1968). Because of the aforementioned characteristics, there is only one other species breeding in North Carolina whose nest and eggs may be confused with Lark Sparrow, that is the Vesper Sparrow (*Pooecetes gramineus*). The Vesper Sparrow breeds in the mountains of northwest North Carolina and may have nested "accidentally" at Greensboro, Rocky Mount, and Wilmington, N.C., though documentation is lacking (Potter et al. 1980).

The largest eggs measured by Berger (1968) for Vesper Sparrows were 22.9 x 16.3 mm, 22.4 x 15.8 mm, and 21.8 x 16.8 mm. The four Lark Sparrow eggs collected in Raleigh were larger in at least one dimension (length or width) than any of the above Vesper Sparrow eggs. Thus, it is highly unlikely that these eggs collected at Raleigh are Vesper Sparrow eggs, based on egg size. Additionally, there are differences in the color and marking of the eggs and nest construction between these two species. R. A. Paynter Jr., Curator of Ornithology at the Museum of Comparative Zoology, stated he believes the identity of Brimley's Lark Sparrow egg set is correct. Sally B. McNair compared this Lark Sparrow egg set with a small series of egg sets of other Lark Sparrows, Horned Larks (*Eremophila alpestris*), and Rufous-sided Towhees (*Pipilo erythrophthalmus*) and stated that Lark Sparrow egg set No. 6658 unquestionably resembled other Lark Sparrow egg sets and not those of the other three species.

The above information provides additional support for the validity of the 1890 breeding record of the Lark Sparrow at Raleigh. Without documentation of the collected nest and eggs, the information accompanying this egg set could not be validated and several lines of reasoning could argue against the authenticity of this nesting record. The value of specimen documentation is once again demonstrated.

I thank R.A. Paynter Jr., Curator of Ornithology at the Museum of Comparative Zoology, and Sally B. McNair for their assistance.

LITERATURE CITED

Baepler, D.H. 1968. Pages 886-902 in Life Histories of North American Cardinals, Grosbeaks, Buntings, Towhees, Finches, Sparrows and Allies, A.C. Bent, U.S. Nat. Mus. Bull. 237.

Berger, A.J. 1968. Pages 868-885 in Life Histories of North American Cardinals, Grosbeaks, Buntings, Towhees, Finches, Sparrows and Allies, A.C. Bent, U.S. Nat. Mus. Bull. 237.

McNair, D.B. 1982. Lark Sparrows breed in Richmond County, N.C. Chat 46:1-8.

Pearson, T.G., C.S. Brimley, and H.H. Brimley. 1942. Birds of North Carolina. N.C. Dept. Agri., Raleigh.

Peterson, R.T. 1980. A Field Guide to the Birds. Houghton Mifflin Co., Boston.

Potter, E.F., J.F. Parnell, and R.P. Teulings. 1980. Birds of the Carolinas. Univ. N.C. Press, Chapel Hill.

CBC ROUNDTABLE

(Continued from Page 70)

supplied by McCallum and LeGrand, while welcome and helpful, does not change the basic premise of the Lee and Irvin paper, which is that full details of tropicbird sightings from the Carolinas need to be published until the seasonal occurrence and relative abundance for the two species have been established.—EFP

Piping Plover Records Needed

Piping Plovers are a shorebird species threatened throughout their North American range. Increased development of their specialized, unvegetated beach habitat may cause more populations to disappear, unnoticed. In an effort to determine the current status and distribution of Piping Plovers, the World Wildlife Fund (Canada), Delta Waterfowl Research Station, and Manitoba Department of Natural Resources are soliciting help in locating birds on breeding, migration, or wintering areas. Please support this project by reporting past or present sightings of Piping Plovers (include date, location, number of birds and color bands, if any). Send information to: **Susan Haig, Delta Waterfowl Research Station, Portage la Prairie, Manitoba R1N 3A1, Canada.**

BRIEFS FOR THE FILES

HARRY E. LeGRAND JR.

(All dates July 1982 to March 1983 unless otherwise indicated;
CBC = Christmas Bird Count)

RED-THROATED LOON: Quite rare inland was one seen by Albert Conway on the Chester, S.C., CBC on 30 December.

NORTHERN FULMAR: A dead individual was found at Pea Island, N.C., in late fall, according to Bonnie Woodall. It is now a specimen at the North Carolina State Museum of Natural History.

AMERICAN WHITE PELICAN: Dennis Forsythe and others again noted a wintering bird at Charleston, S.C., as it was observed from 19 November through February. Another was seen by Dorothy and Roger Foy in January at the junction of Greens Creek and Smith Creek at Oriental, N.C.

BROWN PELICAN: Most unusual inland was one seen by John Koenen on Hope Mills Lake in Cumberland County, N.C., on 14 and 15 January.

DOUBLE-CRESTED CORMORANT: Rare for the mountains was a cormorant at Lake Julian, near Asheville, N.C., on 1 December (Jerry Young, Ken Lawson). A tally of 24 on the Chapel Hill, N.C., CBC on 26 December was excellent for an inland locality; observers were Dan Kaplan, Eric Garner, Jim McConnell, and Don Tarbet.

ANHINGA: Single birds were noted by Jay Carter over I-20 near Camden, S.C., on 26 January, and by Steve Wagner and others at Santee National Wildlife Refuge on Lake Marion, S.C., on 30 January.

GREAT BLUE HERON: Uncommon in the mountains in winter were one on 10 December (Jerry Young, Ken Lawson) and two on 22 February (Ruth Young) in the Cane Creek area near Asheville, N.C. Extremely rare for the Carolinas was an individual of the "Wurdemann's" race (of the Florida Keys), seen by Perry Nugent and party at Cape Island, S.C., on 19 December.

GREEN-BACKED HERON: Early winter stragglers were notable on North Carolina CBCs at Fayetteville on 19 December (Jim Wheeling), Chapel Hill on 26 December (Dan Kaplan et al.), Mattamuskeet National Wildlife Refuge on 29 December (Glenda Ditto), and Hatteras on 31 December (Ken Knapp et al.).

CATTLE EGRET: Rare for the tidewater zone were one seen by Philip Crutchfield and party at Pamlico Point in Pamlico County, N.C., on 12 January, and one noted by Allen Bryan near Engelhard, N.C., on 20 February.

BLACK-CROWNED NIGHT-HERON: Jim Mulholland observed an immature near Raleigh, N.C., on 13 February.

GREAT EGRET: Noteworthy in winter in the piedmont were two on the Jordan Lake, N.C., CBC on 2 January (Dennis Alwon, Bill and Margaret Wagner) and approximately 20 near the Tega Cay part of Lake Wylie, York County, S.C., on 13 January (Dick Brown).

WHITE IBIS: An excellent count at any season for Pea Island was 50+ seen by Allen Bryan on 19 February.

TUNDRA SWAN: Unusual numbers so far inland were 515 on 16 February, 125 on 24 February, and 93 on 26 February in a large plowed cornfield at Caledonia Prison Farm near Tillery, Halifax County, N.C. (Merrill Lynch, Karen Masson). Other extralimital records in North Carolina were 19 flying over Jordan Reservoir on 12 December (Norm Budnitz, Jim McConnell), 30+ near Beaufort on 9 January (John Fussell), and 105 near Newport on 12 February (Fussell, Wayne Irvin).

GREATER WHITE-FRONTED GOOSE: Jeff Beacham observed three adults at Santee refuge, S.C., on 23 December. Three were also seen there on 29 January by Perry Nugent and Dennis Abbott.

SNOW GOOSE: One blue-phase individual was noted by John Fussell and Wayne Irvin on 12 February near Newport, N.C. One blue-phase bird and another in the white phase were seen by Merrill Lynch and Karen Masson near Tillery, N.C., on 16 February.

ROSS' GOOSE: One was again present for most of the winter at Pea Island, being reported on the CBC on 30 December (Paul Sykes et al.) and again during the Carolina Bird Club meeting in that area on 21 and 22 January (Philip Crutchfield et al.).

FULVOUS WHISTLING-DUCK: Rare for a North Carolina CBC was one on a small pond in Hatteras on 31 December, and again on the following day (Harry Armistead and others). Another was along the North Santee River delta, S.C., on 19 February (Peter Manigault).

NORTHERN PINTAIL: Eric Garner, Dan Kaplan, and Jim McConnell observed one at Chapel Hill on the CBC on 26 December.

BLUE-WINGED TEAL: Very rare for the mountains in winter was a male noted by Ron Warner on Lake Tahoma, N.C., on 15 December. Allen Bryan observed 16 at Lake Mattamuskeet, N.C., on 20 February.

COMMON GOLDENEYE: Anson Cooke saw three on Jordan Reservoir on 26 December, and Tom Howard observed single birds at two places on the Southern Pines, N.C., CBC on 2 January. This species, as well as most other waterfowl species, was in low numbers in the Carolinas during the winter owing to very warm weather in December.

COMMON MERGANSER: Five birds, including two males, were noted by Ricky Davis at Jordan Reservoir on 30 January, and Allen Bryan saw three males there on 13 February. Noteworthy for the Bodie-Pea Islands CBC were five on impoundments at Pea Island on 30 December (Paul Sykes et al.).

ROUGH-LEGGED HAWK: One was seen by David Wright just south of Charlotte, N.C., on 12 December. [I have been receiving too many reports of this rare species without adequate details. The above report contained no description, but I accepted it because of the experience of the observer. Many veteran birders have never seen this hawk in the Carolinas, and I feel that most observers who report this species have been too casual in the descriptions. It *is* a fairly easy bird to identify, in all color phases, and the field guide descriptions are reasonably accurate. However, many of the reports have probably been of Red-tailed Hawks seen hovering or seen in poor light. Remember—there are skeptics who question nearly all Rough-legged reports from the Carolinas, so be *absolutely* positive before reporting one.—HEL]

GOLDEN EAGLE: An excellent find was an immature seen by Mike Tove and Kelly Nagel at Lake Mattamuskeet on the CBC on 29 December.

BALD EAGLE: Bill and Margaret Wagner noted three immatures in one tree at Jordan Reservoir on 9 February. Other records of note in inland North Carolina were individuals at Edenton on 4 December (Allen Bryan), near Vass on 2 January (Tom Howard), and at Lake Pinehurst on 8 February (Peggy Jansen).

OSPREY: Dick Brown saw one on an aerial survey for Bald Eagles on 13 January at Lake Wylie, S.C. Another was late at Lake Mattamuskeet, where seen by Mike Tove and Kelly Nagel on 29 December.

PEREGRINE FALCON: One was seen during count period of the Buncombe County, N.C., CBC (held on 18 December), as reported by Ruth Young. Five reports for Carteret County, N.C., during the winter (fide John Fussell) were notable for that area.

MERLIN: Steve Wagner observed one near Pendleton, S.C., on the Clemson CBC on 19 December. Philip Crutchfield and others noted two near Fayetteville on 21 February and another on 28 February.

YELLOW RAIL: One was flushed and studied in flight by David Wright at Magnolia Gardens, near Charleston, on 23 February.

BLACK RAIL: An excellent count for South Carolina was 15 to 25 seen by Peter Manigault during a rice harvest along the North Santee River on 25 November.

COMMON MOORHEN: Howard and Susan Chambers noted one on Stewart's Lake, near Fayetteville, on 25 December.

AMERICAN COOT: Bill and Margaret Wagner had good counts of 1500 on 6 December at Jordan Reservoir and 750+ on 19 February at Falls of the Neuse Reservoir in eastern Durham County, N.C.

LONG-BILLED CURLEW: Infrequently seen in winter was an individual noted by Maurice Barnhill and Greg Massey on 24 December at Fort Fisher, New Hanover County, N.C.

GREATER YELLOWLEGS: Philip Crutchfield had a rare midwinter bird at Fayetteville from 25 January to 11 February.

SPOTTED SANDPIPER: In North Carolina were individuals at North River near Beaufort on 19 December (Allen Bryan), at Harkers Island on several dates in January (Skip Prange), and at Woodlake, near Vass, on 5 February (Dick Thomas).

LONG-BILLED DOWITCHER: Bob Lewis observed one at Lake Mattamuskeet on the CBC on 29 December. This species perhaps winters regularly on the refuge there.

LEAST SANDPIPER: This shorebird is difficult to find in midwinter on the Outer Banks; therefore, six on 19 February were of interest at Pea Island (Allen Bryan).

DUNLIN: A tally of 57 was good at Lake Mattamuskeet on 29 December, as noted by Bob Lewis.

BUFF-BREASTED SANDPIPER: One was seen by Paul Hart, David Wright, and others at the McAlpine Sewerage Treatment Plant near Pineville, Mecklenburg County, N.C., on 29 August. It remained for approximately 10 days.

POMARINE JAEGER: Robert Hader saw one at Atlantic Beach, N.C., on 11 December, and one was noted by Allen Bryan on the Bodie-Pea Islands CBC on 30 December.

PARASITIC JAEGER: Four were seen at Atlantic Beach from 11 to 20 December (John Fussell et al.). Very rare in midwinter was another noted by John Fussell, Larry Crawford, Bob Holmes, and Harry LeGrand at Cape Hatteras point on 6 February.

GLAUCOUS GULL: Immatures were seen in North Carolina at Sunset Beach, in Brunswick County, on 15 December by Philip and Jim Crutchfield; at Oregon Inlet on 30 December by Mike Tove, John Fussell, and Bob Anderson; and at a landfill near Newport from 12 to 26 February by Fussell and others. One was photographed [print examined by the editor—HEL] at Breech Inlet, near Isle of Palms, S.C., on 26 March; it was seen by F. Glenn Smith, George McCoy, and Lex Glover.

ICELAND GULL: Very rare for South Carolina was one seen by Jackson Abbott at Kiawah Island on 7 February. North Carolina had a remarkable number of records this winter. Rather far inland was an individual seen in a parking lot in Elizabeth City on 23 January by Claudia Wilds. Others were at Manns Harbor on 29 December (Bob Lewis, John Fussell, Allen Bryan), near Hatteras on 31 December (Carl Perry), at Fort Macon State Park on 21 January (Fussell) and likely the same bird at Beaufort on 27 January (Fussell), at Ocracoke on 23 January (Philip Crutchfield, Morris Whitfield, John Roach), at Oregon Inlet on 28 January (Pat and Jim Culbertson) and likely the same bird there on 5 February (Fussell et al.), and at the Newport landfill on 18 February (Fussell). The last Iceland was an adult; all others were immatures.

LESSER BLACK-BACKED GULL: Notable in South Carolina was an adult seen by Perry Nugent and party on the McClellanville CBC on 19 December. In North Carolina, four were seen on the Bodie-Pea Islands CBC on 30 December (fide Paul Sykes), and two were seen on the Cape Hatteras CBC on 31 December (Bob Lewis). Others in the latter state were seen near Avon on 1 January (Lewis, Mike Tove, Harry LeGrand), at Bodie Island on 21 January (Philip Crutchfield, Morris Whitfield), at Wanchese on 22 January (Claudia Wilds et al.), at the Newport landfill from 23 February into March and a second there from 23 to 26 February (John Fussell).

COMMON BLACK-HEADED GULL: Good finds were individuals seen by Frances Needham, Dana Carter, and others at a sewage treatment plant at Carolina Beach, N.C., from 18 December to early March; and by Harry LeGrand and John Fussell at Hatteras on 6 February.

BONAPARTE'S GULL: Ramona Snavely, Bobbie Page, and Sue Moore saw 16 on Oak Hollow Reservoir near High Point, N.C., on 15 January. At Jordan Reservoir, six were seen on the Chapel Hill CBC on 26 December (fide Bill Wagner) and one was noted on 29 January (Andy Towle and party).

BLACK-LEGGED KITTIWAKE: Philip Crutchfield and Morris Whitfield observed an oiled bird on a sand bar with other gulls near Salvo, N.C., on 22 January.

SABINE'S GULL: Absolutely remarkable for early spring was an individual in breeding plumage seen by Henry Haberyan on the White Oak River near Swansboro, N.C., on 10 March. He noted the black head, pattern of triangles on the wings, and the square tail as it was seen closely in flight. This is the fifth record for the state.

CASPIAN TERN: John Fussell saw one on the Morehead City, N.C., CBC on 19 December.

BLACK SKIMMER: An excellent total of 610 was reported on the Morehead City CBC on 19 December, fide John Fussell.

RAZORBILL: Mike Tove and Bob Anderson noted one on the ocean at Pea Island on 30 December.

THICK-BILLED MURRE: Very rare was one observed by Carl Perry several miles off Hatteras Inlet on the Cape Hatteras CBC on 31 December.

DOVEKIE: One was found sick or injured on Shackleford Banks, N.C., on 19 December by Maureen Benson. The remains of another were found by John Fussell at Cape Hatteras point on 6 February; the bird had been dead for at least several weeks.

SHORT-EARED OWL: Harry LeGrand observed five at dusk on 6 January in the lakebed of Falls of the Neuse Reservoir along the line between Wake and Durham Counties.

CHUCK-WILL'S-WIDOW: Extremely rare in winter was one seen by Harry LeGrand on a road at dusk at Buxton, N.C., on 31 December. The large size (about as plump as an American Woodcock), brownish-sooty body, and brown throat were clearly seen in the headlights of a car.

RUBY-THROATED (?) HUMMINGBIRD: An immature male was present at Irene Doremus' feeder in Pine Knoll Shores, Carteret County, N.C., from December to 20 January. A close study by John Fussell and Wayne Irvin indicated that the bird was almost certainly a Ruby-throated, especially as "some dark (reddish) feathers were coming in on the throat" (Fussell). A female or immature hummingbird was reported as this species, without details, from Charleston on 28 December (Louise Cauthen).

LEAST (?) FLYCATCHER: An *Empidonax* flycatcher was carefully observed at Cape Island, S.C., on the McClellanville CBC on 19 December. Perry Nugent and John Paquet identified it as a Least. [It is probably best called "Least (?)", as birds of this genus are very difficult to identify when not singing and not in typical habitat.—HEL]

HORNED LARK: Notable for the Outer Banks were two seen near Buxton on 22 January by Philip Crutchfield and Morris Whitfield.

PURPLE MARTIN: Early spring arrivals in coastal North Carolina were two at Sunset Beach on 16 February (Philip Crutchfield) and one at Atlantic Beach on 18 February (John Fussell, Bob Holmes).

FISH CROW: Philip Crutchfield noted one on the rather late date of 18 December at Fayetteville.

SEDGE WREN: On 30 and 31 July, Philip Crutchfield observed one and heard 10 to 12 others singing, apparently on territory, at Pamlico Point, N.C. The birds were in

Black Needlerush marshes. There have been scattered reports in recent years of apparently territorial singing in North Carolina by this species. Unfortunately, such behavior is not necessarily indicative of breeding, and no evidence of nesting has yet been found in the Carolinas.

BLUE-GRAY GNATCATCHER: Quite unusual for the piedmont was an individual that presumably spent the entire winter in Charlotte, N.C. It was seen in Heathy Walker's yard on 5 December, 9 January, and 2 and 3 March. Two were seen on the Jordan Lake CBC on 2 January (fide Barbara Roth) and one was seen on the Lake Mattamuskeet CBC on 29 December (Mike Tove).

WHITE-EYED VIREO: John Wright saw one at Lake Mattamuskeet on the CBC on 29 December, and Paul Sykes noted two at Buxton on the Cape Hatteras CBC on 31 December. Paul Hamel, Alan Avakian, and others noted two on 14 January at the Congaree River swamp, S.C., where the species is perhaps regular in winter.

BLACK-AND-WHITE WARBLER: Individuals were seen on North Carolina CBCs at Durham on 19 December (fide Mike Schultz), at Lake Mattamuskeet on 29 December (Larry Ditto), and Jordan Lake on 2 January (Dan Kaplan, Steve and Maurice Graves). Others were seen at Fayetteville on 8 January (Norman and Barbara Scott), at Raleigh on 12 January (Jim Mulholland), and at Congaree River swamp on 14 and 15 January (three by Alan Avakian et al.).

ORANGE-CROWNED WARBLER: The Cape Hatteras CBC tallied an outstanding 52 individuals on 31 December (fide Carl Perry). Heathy Walker observed one at a suet feeder in Charlotte on 20 January.

NORTHERN PARULA: A very late bird was observed by Jim McConnell in Durham, N.C., on 7 December.

MAGNOLIA WARBLER: Steve Compton noted one late on 26 November at Hampton Park in Charleston.

BLACK-THROATED BLUE WARBLER: Very rare in winter was an individual seen by Paul Sykes in Buxton Woods on the Cape Hatteras CBC on 31 December.

BLACK-THROATED GREEN WARBLER: One was late at Charleston on 26 November (Steve Compton).

YELLOW-THROATED WARBLER: North of the winter range was one seen by Paul Sykes at Buxton on 31 December.

PRAIRIE WARBLER: Paul Sykes noted one on the Cape Hatteras CBC on 31 December. This bird was seen in the same mixed-species flock as the Black-throated Blue and Yellow-throated Warblers.

NORTHERN (BALTIMORE) ORIOLE: Rare for extreme eastern North Carolina were birds on CBCs at Lake Mattamuskeet on 29 December (Mike Tove), at Wanchese on 30 December (two seen by Dan Cristol), and one at Buxton on 31 December (Harry LeGrand).

NORTHERN (BULLOCK'S) ORIOLE: Robert Hader reported that one was seen at a feeder in Raleigh on the CBC there on 18 December. Another male was noted at a feeder near Charleston from 1 October through the winter by Mrs. Gilbert Bradham.

BREWER'S BLACKBIRD: Ross Jervis and party observed two males in a cow pasture with other blackbirds on the Chapel Hill CBC on 26 December. The faint purple overcast on the head and greenish body were noted on the birds.

WESTERN TANAGER: One was seen in an apple orchard and a yard between Hendersonville and Edneyville, N.C., on 4 and 5 January by Ron Warner. [Excellent slides were examined by the editor.—HEL] Another, apparently an adult male, was at Kathy Kirkman's feeder in Pine Knoll Shores, N.C., from early January to early March. It was confirmed by John Fussell on 17 January. A female or immature was seen by Mosely and Ruth Chesnutt in a yard in Fayetteville from early November to March, and a male (with some red on the face) was seen in a yard in a different part of that city from early December to late January (Bob and Becky White, Henry Rankin).

EVENING GROSBEAK: This species was quite rare in the Carolinas during the winter, with only scattered sightings. The highest count reported was 22 observed by Greg Massey at Wilmington, N.C., on 1 March.

HOUSE FINCH: Noteworthy for tidewater North Carolina were eight at Edenton on 4 December (Allen Bryan), two at Hatteras on 31 December (Harry Armistead), and two at a feeder in Wilmington from 13 January to 9 February (Greg Massey). Other notable sightings were as many as 20 at a single Fayetteville feeder during the winter (fide Philip Crutchfield); 100+ in one yard in Whispering Pines, Moore County, N.C., on 2.3 January (Jay Carter, Dick Thomas, et al.); 177 on the Clemson, S.C., CBC on 19 December (fide Paul Hamel); and one in Hendersonville, N.C., on 15 February (Ron Warner).

COMMON REDPOLL (?): One was reported at a feeder on the Chapel Hill CBC on 26 December. [As this species was essentially absent in the northeastern United States during the winter, there is concern about the sighting. Though fair details were provided, the House Finch was not entirely eliminated by the description. Birders who believe they have a redpoll, especially at a feeder, should make every effort to obtain a photograph of the bird or notify experienced observers to verify the sighting.—HEL]

PINE SISKIN: Like Evening Grosbeaks, siskins were very scarce this winter. There were somewhat more reports of this species than of grosbeaks, but most observers did not see either species all winter.

WHITE-WINGED CROSSBILL: An adult male was seen by many birders at the feeder of Lucius Gage near Waxhaw, Union County, N.C., from 15 to 25 February 1982. The bird was photographed, and it was reported by Paul Hart. There were no reports of either species of crossbill during the winter of 1982-1983.

GRASSHOPPER SPARROW: Near the edge of the winter range was one noted by Harry LeGrand north of Beaufort, N.C., on 19 December.

LE CONTE'S SPARROW: One observed by Jim Mulholland just south of Raleigh on 19 February provided a very rare winter record for North Carolina. Numerous birders saw the Le Conte's on the same afternoon.

BACHMAN'S SPARROW: This species has recently been found to occur regularly in winter in the North Carolina Sandhills. This season Jay Carter saw up to four birds in western Fort Bragg on seven dates in December and two dates in January.

CLAY-COLORED SPARROW: Harry LeGrand observed one in a flock of Field Sparrows at Buxton on 31 December (on the Cape Hatteras CBC).

LINCOLN'S SPARROW: A first record for Carteret County, N.C., was one seen by Skip Prange at his feeder on Harkers Island from 26 February to 22 March. He lives adjacent to a shurbby marsh that is a good habitat for the species. Alan Avakian noted another on 19 December on the Clemson CBC near Townville, S.C., the only place in the Carolinas (Anderson County and vicinity) where Lincoln's has been consistently recorded in winter.

SNOW BUNTING: Nine seen by Bob Lewis, Harry LeGrand, and Mike Tove on 1 January between Salvo and Avon, N.C., was the only report for the winter.

BOOK REVIEW

FINDING BIRDS IN THE NATIONAL CAPITAL AREA: A SMITHSONIAN NATURE GUIDE.

Claudia Wilds. 1982. Smithsonian Institution Press, Washington, D.C. Illus. Appendices. Index. 215 p. Softbound, $10.95.

Guides to bird finding range from a few sheets of paper stapled together to hardbound books, but most tend to be softbound books that sell for about $10 or less. They may be very general (e.g. the two-volume Pettingill work) or very localized (e.g. the Lane and Tveten Texas coast guide). The latter, with its habitat photographs, bar graphs, and detailed maps, is a well-written but strictly utilitarian book that has helped to make the Texas Gulf Coast a mecca for bird watchers. Recently we have seen the publication of several statewide bird-finding guides, notably Bierly's book for Tennessee (see Chat 44:119). Their greater geographic coverage makes the bar graphs impractical, and these books tend to emphasize habitat variations rather than avian specialties. Most of these books have been a labor of love accomplished by author/publishers with a minimum of professional advice on design and layout. The result has been a series of very helpful books marred by maps with legends too small for easy reading even under the best of conditions.

Now we have a new guide to the area within easy driving distance of Washington, D.C., which includes all or parts of six states. Of the bird-finding books I have examined, this is by far the most attractive in format and, as far as I can tell without field-testing it, the best illustrated and best written. The large-scale maps, prepared by Kai Yee, and the large-size, well-spaced type can be easily read in a moving car. The spacious design by Alan Carter and drawings by Doreen Curtin are pleasing to the eye. These "little things" *do* make a difference!

CBC members who attended the meeting at Nags Head in January 1983 no doubt recall how skillfully Miss Wilds explained some very difficult problems in shorebird identification—and to mention her directions for finding the Lesser Black-backed Gull at Wanchese. She is a "good 'splainer," as one child used to say about a favorite teacher.

Although the author acknowledges her debt to Carl W. Carlson's series of articles, published in the 1960s, on bird finding in the D.C. area as well as the contributions of numerous other dedicated bird students, the book as a whole is uniquely her own. If you doubt this, just read her expression of appreciation to the typist.

The guide primarily covers the District of Columbia, Maryland, Delaware, and northern Virginia; however, a few places in Pennsylvania, New Jersey, southeastern Virginia, and North Carolina are mentioned briefly. An introductory section deals with geography, climate, and species to look for. The annotated species list gives relative abundance for birds found regularly within the area covered, season of occurrence, and places to look for them. Rarities and accidentals are listed separately without notations. Regional headings are mostly self-explanatory: Washington and the Suburbs; The Piedmont; Ridges, Valleys, and the Allegheny Plateau; The Western Shore (of Chesapeake Bay); The Eastern Shore; and South of Chesapeake Bay (southside Virginia and the North Carolina Outer Banks). A concluding section provides information on pelagic trips, hawk watching, and owling. Appendices list natural history and ornithological societies, useful publications (including maps), and cooperative birding activities.

The usual route directions, habitat descriptions, and lists of expected birds are enhanced by the author's common-sense advice to bring along plenty of food and drink, to avoid certain places when temperatures are too high or winds are unfavorable, and to heed "No Parking" and "No Trespassing" signs. The comments on each site are brief and straightforward, but they are presented in very readable complete sentences, often with a subtle touch of humor. The emphasis is on having a pleasant trip rather than adding a fantastic number of birds to your life list. My impression is that Miss Wilds wrote this book for a wide audience of bird watchers with the same care and enthusiasm she would use in giving directions to a very special friend.—EFP

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OUR COVER—Fall migration brings many thousands of waterfowl to national wildlife refuges in the Carolinas. These birds include numerous young of the year such as the male American Wigeon photographed by John Trott.

Fall Migration of Land Birds at Fort Fisher, New Hanover County, N.C.

RICHARD J. DAVIS and JAMES F. PARNELL

Abstract. Fall migration of land birds at Fort Fisher, New Hanover County, N.C., was studied during August, September, October, and November 1978, to determine species occurrence and abundance as well as habitat usage for the four major habitats covered on 38 censuses. The Fort Fisher area is described and findings are compared to Paul Sykes' (1968) work on fall migration on the Outer Banks of North Carolina. Warblers, finches, and sparrows were most common among the 107 species of birds recorded. The heaviest passage was on 7 October, although some birds were moving throughout the period of study. Heaviest usage was of the shrub-thicket habitat with the fewest birds using the marsh habitats. Relationships between migratory concentrations, weather, and local geography are discussed.

Many workers have studied the fall migration of birds, particularly the phenomenon of coastal migration. Extensive observations have been made at many sites in the eastern and northeastern coastal states, with Long Island, New York, Cape May, New Jersey, and Cape Charles, Virginia, being the best known.

Fall migration work on the coast of the Carolinas has been limited, with a major exception being the detailed study by Sykes (1968) on the Outer Banks of northeastern North Carolina. His work documented the species diversity, abundance, and duration of fall migration on the coast. Sykes found large numbers of fall migrants and gave evidence for a notable passage of land birds south of the Virginia capes.

The Fort Fisher area (Fig. 1) at the southern tip of New Hanover County, N.C., has only recently been noted in the ornithological literature. The earliest published material came from *Auk* and *Wilson Bulletin* in the 1920s and 1930s. These first reports were generally short comments on isolated sightings of unusual species. By the 1950s brief notes began appearing in *Chat* and *Audubon Field Notes* (later *American Birds*). Since the 1960s there has been a steady flow of published sightings, and Fort Fisher has become a very popular site for bird watching. Most of the published material continues to be brief notes on uncommon species.

The present study was prompted by these early published reports and by preliminary field work during the fall of 1976 and 1977 when it was found that there was a definite concentration of migrants at Fort Fisher. The purpose of this paper is to document the concentration of land birds at Fort Fisher during the fall migration season and to compare the results with Sykes' (1968) findings in northeastern North Carolina.

HABITATS

Fort Fisher is the site of a Civil War fort. Field work began at the fort and included the peninsula south to the parking lot at the termination of US 421 (Fig. 1). There are five primary habitats in the study area: forest, shrub thicket, herb-shrub, short grass, and salt marsh (Fig. 2). Of these only the forest is not present to a significant extent in the study

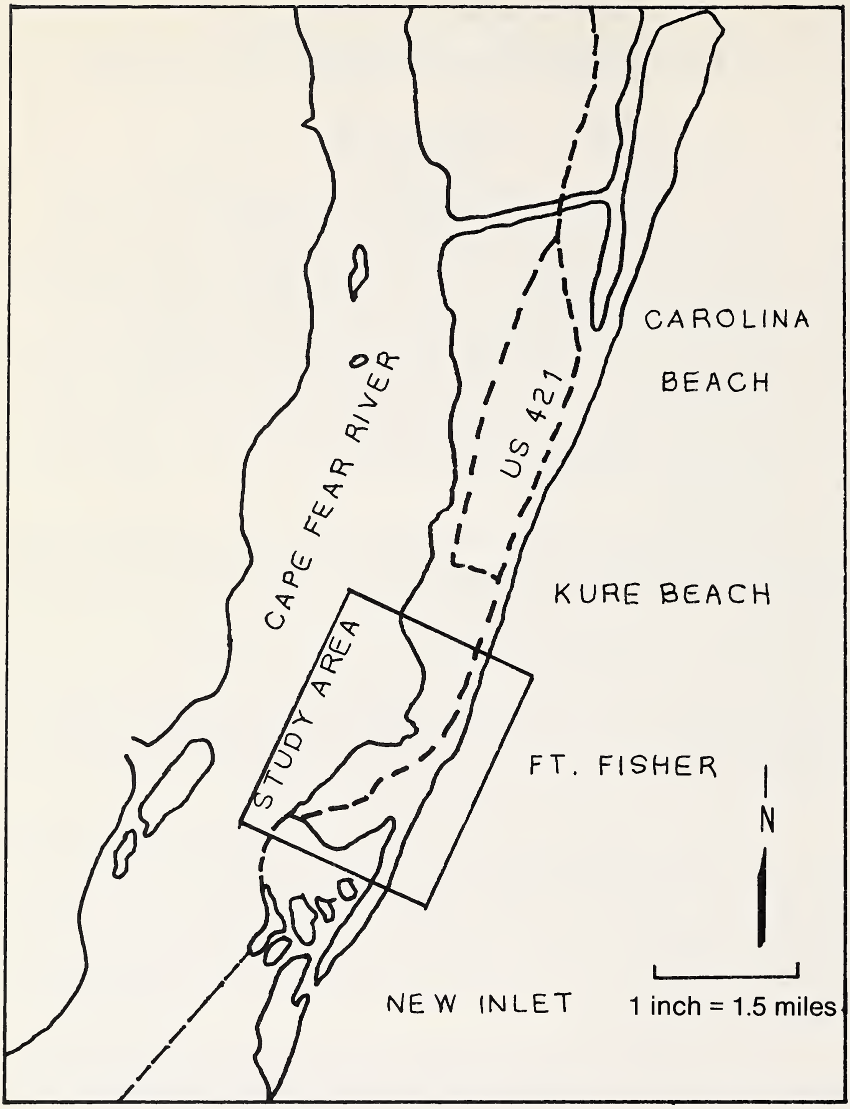
CAPE FEAR RIVER
US 421
CAROLINA
BEACH
KURE BEACH
STUDY AREA
FT. FISHER
N
NEW INLET
1 inch = 1.5 miles

Fig. I. Location of Fort Fisher, N.C., and the study area.

area. Shrub-thicket and salt-marsh habitats are extensive, but short grass and herb-shrub are localized. Short grass covers cleared and regularly mowed lanes at the ferry slip and at the fort site. Herb-shrub habitat is found along the northern side of the ferry-slip fence. Adjacent to this fence is a diked dredged-material disposal site, which is the only extensive herb-shrub area.

The shrub-thicket habitat covered about 36% of the study region, and the average height of the vegetation was 13 feet. The dominant plants were Wax Myrtle (*Myrica*

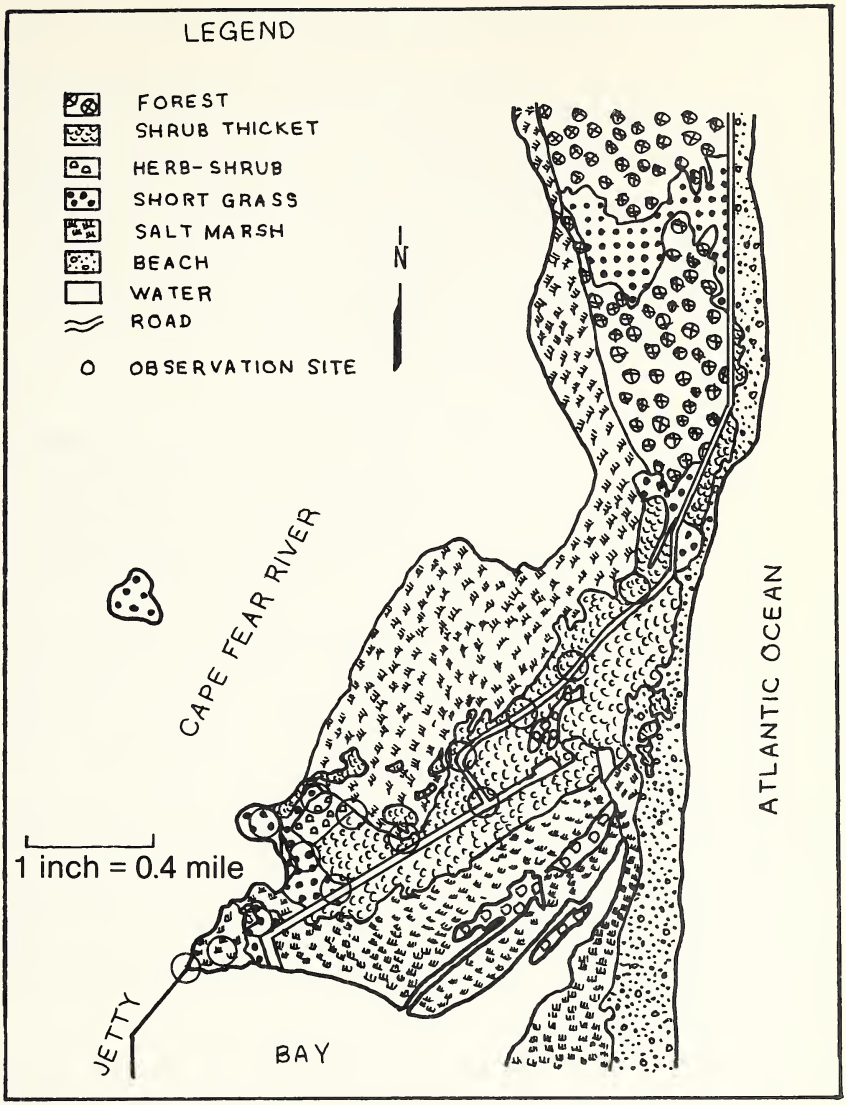
LEGEND
FOREST
SHRUB THICKET
HERB-SHRUB
SHORT GRASS
SALT MARSH
BEACH
WATER
ROAD
OBSERVATION SITE
N
CAPE FEAR RIVER
ATLANTIC OCEAN
1 inch = 0.4 mile
JETTY
BAY

Fig. 2. Habitats surveyed within the Fort Fisher study area.

cerifera), Yaupon (*Ilex vomitoria*), Groundsel-tree (*Baccharis halimifolia*), Red Cedar (*Juniperus virginiana*), and Marsh Elder (*Iva frutescens*).

The herb-shrub habitat covered about 8% of the study area, and the average height of the vegetation was 5 feet. The dominant plants were Salt-meadow Cordgrass (*Spartina patens*), Sand Grass (*Triplasis purpurea*), Camphorweed (*Heterotheca subaxillaris*), Horseweed (*Erigeron canadensis*), Seaside Goldenrod (*Solidago sempervirens*), Common Reed (*Phragmites communis*), Pokeweed (*Phytolacca americana*), Marsh Elder, Iva (*Iva* *imbricata*), Groundsel-tree, False Willow (*Baccharis angustifolia*), and Sea Oxeye (*Borrichia frutescens*).

The salt-marsh habitat covered about 48% of the study area, and the average height of the plants was 4 feet. The dominant plants were Black Needlerush (*Juncus roemerianus*) and Smooth Cordgrass (*Spartina alterniflora*).

The short-grass habitat covered about 8% of the region, and the average height of the vegetation was 1 foot. The dominant plants were Sandspur (*Cenchrus tribuloides*), Bermuda Grass (*Cynodon dactylon*), Crab Grass (*Digitaria sanguinalis*), and Sand Grass.

The primary observation sites were scattered in all major habitats (Fig. 2). Sites 1, 2, 3, 7, and 8 were predominantly marsh. Sites 7 and 8 also had a mixture of grasses, weeds, and shrubs. Sites 4, 5, 6, and 10 were thickets and short grass. Sites 9, 11, 12, 13, and 14 were primarily covered with shrub thickets.

METHODS

The study period extended from 1 August to 16 November 1978. Censuses were terminated in mid-November owing to time limitations of the study. Each census lasted as long as was needed to cover all habitats, and most were done between 0700 and 1200.

The study area extended from the fort area south to the bay and included samples of all habitats from the beach to the river. Figure 2 shows the major habitat areas and the primary observation sites.

The census method used involved recording the number of individuals seen or heard within each habitat as the observer moved along a fixed route. A 7 X 35 binocular and a 30X spotting scope were used in identification. A standardized field data sheet was used for recording observations. It provided space for noting species by habitat and a column for birds overhead. Also, there were spaces to record the date, weather, total species, total individuals, comments, time in the field, and time in each habitat.

Davis did all the field work except during a 3-week period of illness when several observers filled in as available. On two occasions members of Parnell's ornithology class were present.

The map of the study region (Fig. 2) was adapted from an aerial photograph provided by the U.S. Army Corp of Engineers. The location map (Fig. 1) was reproduced from a N.C. Highway Commission county road map. Plant names follow Radford et al. (1968), and bird names follow the A.O.U. *Check-List of North American Birds* (1957) and its Thirty-fourth Supplement (A.O.U. 1982).

RESULTS AND DISCUSSION

Table 1 gives individual totals for each species during each month and for the entire study period. Table 2 gives individual totals for each habitat during each month and the entire study period.

Birds-per-hour values in Tables 1 and 2 were calculated by dividing the individual totals by the number of hours spent in each habitat. The number of hours are exact except in the case of birds recorded overhead. Birds overhead were counted at all times in all habitats. On a few occasions, while stationed at one area, time was spent counting only overhead migrants. Therefore, overhead hour values are totals of both observation times and are identical to the total time spent in the field each month.

Between 1 August and 16 November 1978, 16,151 individuals of 107 species of birds were recorded on 38 censuses at Fort Fisher. The 107 species represent 30 families of 9 orders. Members of the order Passeriformes (perching birds) were most numerous, with warblers, finches, and sparrows being common.

The most abundant species was the Yellow-rumped (Myrtle) Warbler followed closely by the Tree Swallow, Fish Crow, and Northern Flicker. The Yellow-rumped Warbler and Tree Swallow normally winter in southeastern North Carolina in large numbers, whereas the Fish Crow and Common Flicker are common permanent residents. Abundance and conspicuousness help to account for the large numbers recorded.

The total abundance figures for the fall range from 0.01 birds-per-hour to 16.69 birds-per-hour. Only slightly more than one-fourth of the species recorded show abundance figures of more than 1.00 birds-per-hour. Some birds no doubt passed through in larger numbers, but, owing to their secrecy, were missed. Many of the thrushes and some of the warblers were most likely overlooked. Data for the larger, more conspicuous birds such as the Eastern Kingbird, Northern Mockingbird, and blackbirds, probably represent more closely their actual abundance.

Sykes (1968), in his study on the North Carolina Outer Banks, had rather similar results, with the same groups of species being most common. One exception is that he reported a higher incidence of thrushes. Another difference is that Sykes had more individuals of the late-migrating birds such as Golden-crowned Kinglet, Brown Creeper, Dark-eyed (Slate-colored) Junco, and several species of sparrows. This may be a result of erratic field work at Fort Fisher from mid-October until the completion of the study on 16 November. There were more accipiters (Sharp-shinned and Cooper's Hawks), Eastern Kingbirds, Bobolinks, and Indigo Buntings recorded at Fort Fisher than on the Outer Banks. The reasons for this are not clear because these birds are fairly easy to see. Slight changes in their normal migration routes may account for these differences.

Many earlier studies have reported on the effects of weather on migratory birds, with cold fronts seeming to be especially influential on fall movements. During this study, the heaviest movement of birds was on 7 October. There was a marked drop in temperature and slight wind change from the previous day. A cold front had passed the day before and the migratory movement noted on the 7th appeared to be associated with the front's passage.

There was a substantial difference in habitat usage by migrating birds. The most heavily used habitat was the shrub thicket, which averaged 118.49 birds-per-hour. Next was 79.44 birds-per-hour seen overhead. This was followed by short-grass habitats with 36.96 birds-per-hour, herb-shrub habitats with 23.02 birds-per-hour, and marsh habitats with 19.51 birds-per-hour. This pattern was similar for each month, except that herb-shrub decreased steadily in usage until November and marsh and short-grass habitats increased in usage up until November. Sykes (1968) also found that shrub thickets were the most heavily used habitats on the Outer Banks. As in the present study, the marsh habitats studied by Sykes were used much less frequently than other habitats.

There was a definite sequence in the migration at Fort Fisher. Some birds were moving even before the study actually began on 1 August. Birds continued to migrate after the study ended in November. From observations by the authors at Fort Fisher in previous years, it has been found that some land birds are migrating through southeastern North Carolina from mid-July through November. Early migrants include the flycatchers,

TABLE 1. Total numbers and relative abundance of birds at Fort Fisher, New Hanover County, N.C., during the fall of 1978.

Species	*August*	*September*	*October*	*November*	*Fall*
Turkey Vulture	0	10(.28)	24(.72)	3(.16)	37(.35)
Osprey	10(.54)	17(.47)	14(.42)	3(.16)	44(.41)
Northern Harrier	0	14(.39)	10(.30)	14(.73)	38(.35)
Sharp-shinned Hawk	0	31(.86)	17(.51)	31(1.61)	79(.74)
Cooper's Hawk	0	3(.08)	4(.12)	3(.16)	10(.09)
Accipiter sp.	0	0	0	1(.05)	1(.01)
Northern Goshawk	0	1(.03)	0	0	1(.01)
Red-tailed Hawk	0	0	0	2(.10)	2(.02)
American Kestrel	0	61(1.69)	17(.51)	14(.73)	92(.86)
Merlin	0	7(.19)	6(.18)	0	13(.12)
Peregrine Falcon	0	0	1(.03)	0	1(.01)
Northern Bobwhite	29(1.58)	36(1.00)	9(.27)	0	74(.69)
Rock Dove	29(1.58)	0	0	0	29(.27)
Mourning Dove	116(6.30)	106(2.93)	65(1.95)	18(.94)	305(2.85)
Common Ground-Dove	8(.43)	24(.66)	4(.12)	3(.16)	39(.36)
Yellow-billed Cuckoo	22(1.20)	1(.03)	0	0	23(.21)
Common Nighthawk	0	1(.03)	0	0	1(.01)
Chimney Swift	3(.16)	1(.03)	0	0	4(.04)
Ruby-throated Hummingbird	11(.60)	0	0	0	11(.10)
Belted Kingfisher	1(.05)	38(1.05)	21(.63)	10(.52)	70(.65)
Red-headed Woodpecker	0	4(.11)	1(.03)	0	5(.05)
Red-bellied Woodpecker	1(.05)	1(.03)	0	0	2(.02)
Yellow-bellied Sapsucker	0	1(.03)	6(.18)	1(.05)	8(.07)
Downy Woodpecker	1(.05)	3(.08)	0	2(.10)	6(.06)
Northern Flicker	5(.27)	503(13.91)	723(21.74)	74(3.84)	1,305(12.19)
Pileated Woodpecker	0	1(.03)	0	0	1(.01)
Eastern Wood-Pewee	0	2(.06)	6(.18)	0	8(.07)
Empidonax sp.	0	5(.14)	1(.03)	0	6(.06)
Eastern Phoebe	0	3(.08)	49(1.47)	0	52(.49)
Great Crested Flycatcher	1(.05)	0	0	0	1(.01)

Eastern Kingbird	149(8.10)	601(16.62)	75(2.26)	0	825(7.71)
Purple Martin	43(2.34)	36(1.00)	0	0	79(.74)
Tree Swallow	0	802(22.18)	699(21.02)	0	1,501(14.02)
Northern Rough-winged Swallow	0	5(.14)	0	0	5(.05)
Bank Swallow	0	8(.22)	1(.03)	0	9(.08)
Barn Swallow	125(6.79)	224(6.19)	5(.15)	0	354(3.31)
Blue Jay	3(.16)	50(1.38)	48(1.44)	22(1.14)	123(1.15)
American Crow	4(.22)	39(1.08)	15(.45)	25(1.30)	83(.78)
Fish Crow	42(2.28)	269(7.44)	251(7.55)	829(43.06)	1,391(12.99)
Carolina Chickadee	10(.54)	23(.64)	4(.12)	24(1.25)	61(.57)
Red-breasted Nuthatch	0	1(.03)	25(.75)	0	26(.24)
Carolina Wren	59(3.21)	99(2.74)	53(1.59)	35(1.82)	246(2.30)
House Wren	2(.11)	17(.47)	40(1.20)	62(3.22)	121(1.13)
Sedge Wren	0	0	0	6(.31)	6(.06)
Marsh Wren	0	0	0	17(.88)	17(.16)
Ruby-crowned Kinglet	0	1(.03)	49(1.47)	37(1.92)	87(.81)
Blue-gray Gnatcatcher	1(.05)	9(.25)	4(.12)	0	14(.13)
Veery	0	1(.03)	0	0	1(.01)
Swainson's Thrush	0	0	2(.06)	0	2(.02)
Hermit Thrush	0	0	0	1(.05)	1(.01)
American Robin	0	0	0	132(6.86)	132(1.83)
Gray Catbird	4(.22)	25(.69)	76(2.89)	50(2.60)	155(1.45)
Northern Mockingbird	126(6.85)	202(5.59)	127(3.82)	37(1.92)	492(4.60)
Brown Thrasher	18(.98)	21(.58)	38(1.14)	12(.62)	89(.83)
Water Pipit	0	0	0	4(.21)	4(.04)
Cedar Waxwing	0	1(.03)	3(.09)	10(.52)	14(.13)
European Starling	105(5.71)	292(8.08)	122(3.67)	157(8.16)	676(6.31)
White-eyed Vireo	16(.87)	9(.25)	1(.03)	0	26(.24)
Yellow-throated Vireo	0	0	1(.03)	0	1(.01)
Red-eyed Vireo	1(.05)	2(.06)	3(.09)	0	6(.06)
Tennessee Warbler	0	2(.06)	0	0	2(.02)
Orange-crowned Warbler	0	3(.08)	1(.03)	16(.83)	20(.19)
Nashville Warbler	0	1(.03)	0	0	1(.01)

TABLE 1. Continued.

Species	*August*	*September*	*October*	*November*	*Fall*
Northern Parula	0	1(.03)	18(.54)	0	19(.18)
Yellow Warbler	31(1.68)	82(2.27)	7(.21)	0	120(1.12)
Magnolia Warbler	0	8(.22)	4(.12)	0	12(.11)
Cape May Warbler	0	19(.53)	28(.84)	0	47(.44)
Black-throated Blue Warbler	0	1(.03)	7(.21)	0	8(.07)
Yellow-rumped Warbler	0	2(.06)	91(.274)	1,694(88.00)	1,787(16.69)
Black-throated Green Warbler	0	0	1(.03)	0	1(.01)
Pine Warbler	0	0	3(.09)	0	3(.03)
Prairie Warbler	76(4.13)	151(4.18)	75(2.26)	3(.16)	305(2.85)
Palm Warbler	0	183(5.06)	445(13.38)	43(2.23)	671(6.27)
Blackpoll Warbler	0	2(.06)	0	0	2(.02)
Black-and-white Warbler	2(.11)	2(.06)	5(.15)	0	9(.08)
American Redstart	17(.92)	115(3.18)	157(4.72)	0	289(2.70)
Prothonotary Warbler	73(3.97)	0	0	0	73(.68)
Northern Waterthrush	16(.87)	66(1.83)	23(.69)	0	105(.98)
Common Yellowthroat	4(.22)	112(3.10)	68(2.05)	8(.42)	192(1.79)
Wilson's Warbler	0	1(.03)	0	0	1(.01)
Yellow-breasted Chat	3(.16)	3(.08)	2(.06)	0	8(.07)
Summer Tanager	2(.11)	2(.06)	0	0	4(.04)
Northern Cardinal	89(4.84)	115(3.18)	70(2.11)	48(2.49)	322(3.01)
Rose-breasted Grosbeak	0	0	1(.03)	0	1(.01)
Blue Grosbeak	11(.60)	6(.17)	4(.12)	2(.10)	23(.21)
Indigo Bunting	25(1.36)	45(1.24)	136(4.09)	8(.42)	214(2.00)
Painted Bunting	58(3.15)	45(1.24)	25(.75)	0	128(1.20)
Dickcissel	0	0	2(.06)	0	2(.02)
Rufous-sided Towhee	41(2.23)	16(.44)	21(.63)	46(2.39)	124(1.16)
Chipping Sparrow	0	0	0	10(.52)	10(.09)
Clay-colored Sparrow	0	0	1(.03)	0	1(.01)

Field Sparrow	0	0	3(.09)	9(.47)	12(.11)
Savannah Sparrow	0	32(.88)	93(2.80)	110(5.71)	235(2.20)
Sharp-tailed Sparrow	0	2(.06)	4(.12)	21(1.09)	27(.25)
Seaside Sparrow	1(.05)	10(.28)	8(.24)	14(.73)	33(.31)
Song Sparrow	0	0	18(.54)	190(9.87)	208(1.94)
Swamp Sparrow	0	0	12(.36)	84(4.36)	96(.90)
White-throated Sparrow	0	0	11(.33)	84(4.36)	95(.89)
Dark-eyed Junco	0	0	3(.09)	2(.10)	5(.05)
Bobolink	4(.22)	508(14.05)	78(2.35)	0	590(5.51)
Red-winged Blackbird	241(13.10)	90(2.49)	105(3.16)	121(6.29)	557(5.20)
Eastern Meadowlark	0	0	18(.54)	16(.83)	34(.32)
Boat-tailed Grackle	73(3.97)	191(5.28)	46(1.38)	46(2.39)	356(3.33)
Common Grackle	10(.54)	15(.41)	2(.06)	320(16.62)	347(3.24)
Brown-headed Cowbird	3(.16)	3(.08)	0	0	6(.06)
Orchard Oriole	38(2.07)	0	0	0	38(.35)
Northern Oriole	1(.05)	79(2.18)	28(.84)	0	108(1.01)
American Goldfinch	0	0	0	8(.42)	8(.07)
House Sparrow	10(.54)	6(.17)	28(.84)	33(1.71)	77(.72)
TOTALS	1,774	5,530	4,272	4,575	16,151

TABLE 2. Abundance of birds in primary habitats at Fort Fisher during the fall migration, with birds-per-hour given in parentheses.

Habitat	*August*	*September*	*October*	*November*	*Fall*
Thicket	954(88.09)	1,945(99.74)	1,967(115.71)	1,709(209.44)	6,575(118.49)
Herb-shrub	201(43.04)	94(15.04)	39(9.54)	69(27.60)	403(23.02)
Marsh	32(11.03)	51(14.96)	49(14.67)	105(42.00)	237(19.51)
Short grass	0(0.00)	64(32.00)	285(53.57)	82(18.89)	431(36.96)
Overhead	587(31.90)	3,376(93.96)	1,932(58.11)	2,610(135.58)	8,505(79.44)
TOTALS	1,774(96.41)	5,530(152.93)	4,272(128.48)	4,575(237.66)	16,151(150.86)

Ruby-throated Hummingbird, Prothonotary Warbler, and the Orchard Oriole. Late migrants include Marsh and Sedge Wrens, American Robin, Yellow-rumped Warbler, and most of the sparrows. There are also many birds like the woodpeckers, House Wren, mimic thrushes, some warblers, and some of the blackbirds that are seen throughout the period. Most of the hawks migrated from mid-September to early November.

One interesting aspect of the migration was the diurnal hawk movement along the coast. Sykes' Outer Banks numbers were lower than ours from Fort Fisher for accipiters, though higher for falcons. One noted difference was a lack of buteos recorded at Fort Fisher, which could have been a result of ending censuses before noon, when these birds normally peak in numbers. Further hawk watches should be conducted at Fort Fisher to determine more accurately the magnitude of the hawk migration there.

Disorientation of migrant birds was frequently noted at Fort Fisher. Birds circled high overhead at the tip of the peninsula and then either flew in a westerly direction across the Cape Fear River or, more commonly, headed up the river shoreline in a northwesterly direction. Presumably the birds were attempting to reorient themselves to their preferred migratory pathways (Baird and Nisbet 1960).

Disorientation also results when birds are blown out over the ocean during the night. They can be seen flying toward the shore early in the morning (Stone 1937). This was observed on two occasions during the study at Fort Fisher and usually involved small passerines such as warblers. Stone surmised that this disorientation was caused by northwest winds taking birds out to sea during nocturnal migration. Apparently this was also the case at Fort Fisher. Baird and Nisbet (1960) conducted studies on coastal islands in the Northeast, and they give similar reasons for this occurrence, terming it "offshore drift."

One factor apparently influencing migration at Fort Fisher is the general shape of the peninsula. The peninsula acts as a "funnel" and tends to concentrate southbound migrants. Birds following river and ocean shorelines would certainly follow a narrowing path in the Fort Fisher area. This concept was also noted by Sykes (1968) on the Outer Banks. He indicated that the "small land mass" was one of the factors responsible for concentrating the migrants. It can also be said that northwest winds blow migrants to the coast where they then proceed to follow the coastline (Baird and Nisbet 1960). This probably also influences the concentrations of birds at Fort Fisher.

Local landform, northwest wind drift and the disorientation often associated with it, and cold-front weather patterns thus appear to make the Fort Fisher area a place for concentrations of migrants durng the fall season. The numbers and kinds of birds found in this study are similar to those of Sykes (1968), clearly indicating a significant passage of migrating land birds.

Further work needs to be done in the field of migration and its controlling influences related to concentrations of migrants. Not only do studies of species diversity and abundance need to be done, but the sequence of migration needs further documentation. It is hoped that additional work at Fort Fisher will be initiated as a result of this study.

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LITERATURE CITED

American Ornithologists' Union. 1957. Check-List of North American Birds. Fifth ed. American Ornithologists' Union, Baltimore, Md.

American Ornithologists' Union. 1982 Thirty-fourth supplement to the American Ornithologists' Union Check-List of North American Birds. Auk 99(3):1CC-16CC.

Baird, J., and I.C.T. Nisbet. 1960. Northward fall migration on the Atlantic coast and its relation to offshore drift. Auk 77:119-149.

Radford, A.E., H. Ahles, and C.R. Bell. 1968. Manual of the Vascular Flora of the Carolinas. Univ. N.C. Press, Chapel Hill.

Stone, Witmer. 1937. Bird Studies at Old Cape May. Vol I. Intelligencer Printing Co., Lancaster, Pa.

Sykes, P.W., Jr. 1968. The fall migration of land birds along the Bodie-Pea Island region of the Outer Banks of northeastern North Carolina. M.S. Thesis. North Carolina State University, Raleigh.

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CORRECTION

If you are wondering why Volume 47 of *The Chat* has two Fall issues, the explanation is very simple: The Editor suffered a mental lapse. Issue Number 3 should have been designated as "Summer 1983," instead of "Fall 1983." To get us back on schedule, the present issue is also designated as "Fall 1983." The Editor regrets any inconvenience this duplication may cause readers and researchers.—EFP

Backyard Birding

... with Gail T. Whitehurst

Mixed-up Birds

As any experienced bird watcher knows, you can't find everything you see in the field guides. Here are a couple of examples of some really mixed-up birds.

On 30 July 1983 I saw a warbler in the Flowering Dogwood outside the breakfast table window. I studied it for a minute or two before it flew out of sight. It had a yellow head and breast; blue back, wings, and tail; white belly and under tail coverts; two white wing bars like those of a Northern Parula; a hint of yellow at the bend of the wing; and a very small warbler bill. No olive back patch or black eye line was seen. My best guess is a Northern Parula X Prothonotary Warbler hybird. Both species nest nearby, along Moccasin Creek. Fortunately my son David saw the bird and confirmed the field marks. At least I know the bird was mixed up instead of the bird watcher.

Seeing this strange individual reminded me of a report Kay Sisson submitted to the CBC Records Committee some years ago. At the time it seemed too strange to publish as a General Field Note without a supporting specimen or photograph, but perhaps it should be mentioned here as a believe-it-or-not curiosity.

"On 26 May 1976 Norme and Betty Frost, Clyde, and I were parked at Big Witch Overlook (elevation 4160 feet) at milepost 460 between Soco Gap and the terminus of the Blue Ridge Parkway in Haywood County, N.C. In perfect light of midafternoon we saw a Cerulean Warbler in mature plumage fly 15 to 20 feet from us across the highway and disappear in trees opposite. While trying to squeak it into view, from the same direction and place flew even closer to us a STRANGE BIRD. It perched on an oak tree limb 15 feet in front of us for several minutes so that we could easily study it.

"Indigo Buntings are common in the Blue Ridge area. There is only a half-inch difference in the size of the Cerulean and the Indigo. It was that size one way or the other. What struck us immediately was a white crown and the much deeper blue plumage—I'd say two-thirds Cerulean and one-third Indigo (no iridescence)—and the fact that the underparts were almost completely the strange mixture of blue, except for a white chin, throat and narrow breast area, the [throat and breast] separated by the typical narrow black band of the Cerulean. It had a white forehead and the wide white crown spread from eye to eye. It had white wing-bars. Note this: It had the stubby dark bill of the bunting. It did not sing or chirp and finally disappeared into the understory."

Well-documented intergeneric hybirds are fairly common among the wood warblers (see Parkes, Auk 95:682-690). That the mating of a Cerulean Warbler with an Indigo Bunting could produce viable young, however, seems too strange to be true. Nonetheless, the skeptical reader is cautioned not to disparage these reports, for he may be the next to witness the startling results of avian dalliance.—ELOISE F. POTTER, Route 3, Box 114 AA, Zebulon, N.C. 27597

Martins and Dragonflies

Although there is little evidence that birds have any formal knowledge of economics, our feathered friends seem to be, nevertheless, good economists. Birds are attracted to concentrations of food and frequently select from among the food items available those that provide the greatest return for the least expenditure of effort (careful shopping?).

I don't know just how carefully Purple Martins shop, but I do have reason to believe that they are discerning shoppers, certainly when there are young in the nest and the demand for food runs high. From about the seventh day after hatching onward, the parent birds specialize more and more on dragonflies, large, soft-bodied insects that probably represent the maximum return in food per foray for a species agile enough to catch these swift flyers. Martins are up to the task, as the following data will show.

There were 10 broods ranging in age from about 10 days to 2 weeks in my colony in Raleigh, N.C., when I began observations 3 June 1983. Between 1705 and 1735 on that day the 10 pairs of parent birds delivered 56 dragonflies. Commencing on 4 June, I kept records of all food items delivered. Between 1110 and 1140 on that day, the parents delivered 98 dragonflies and 67 other, mostly unidentifiable, items of prey. Between 1700 and 1800 on 6 June, the ratio was 100 dragonflies to 70 others, and on 12 June between 1730 and 1800, 57 dragonflies to 86 others.

During the sampling periods between 4 and 12 June, 53% of the prey items delivered were dragonflies including about 50 specimens of *Epiaeschna heros,* the largest dragonfly known to occur in North Carolina. Much of the prey delivered 12 June was a large mayfly, an insect favored, when available, about as much as dragonflies. There were several butterflies, mostly the Mourning Cloak (*Nymphalis antiopa*) and *Vanessa* sp.—JOSHUA A. LEE, 5104 Newcastle Road, Raleigh, N.C. 27606

CBC Roundtable

... with Louis C. Fink

Starlings vs. Red-headed Woodpeckers

During my boyhood in Berryville, Virginia, Red-headed Woodpeckers were abundant; every farm had its quota. A 2-acre lawn shaded by mature White Oaks was alive with them in the nesting season.

I first saw European Starlings in Berryville in 1922. In following years I watched them usurp the woodpeckers' nest cavities. The starling's eviction operation is a horror. Woodpeckers defending their eggs or unfledged young were often pecked to death by the starlings, the blows of whose rapier-like beaks were directed to the head.

The old oaks in Berryville still exist, filled with starlings; the town has had no Red-headed Woodpeckers in many decades. The last substantial group of them in Clarke County nested on the Burch McKay farm near Millwood. They were there because the starlings were shot by the McKays' small sons. With the boys gone, starlings have taken over.

When I entered the University of North Carolina at Chapel Hill in 1927, Red-headed Woodpeckers were common, especially at nesting time, in the oak grove which is still on campus. Making my home in Chapel Hill, I saw the starlings re-enact their take-over. What was probably the last stable group of nesting Red-headed Woodpeckers in Chapel Hill made their final stand in the early 1950s at my home on East Rosemary Street. I controlled starlings for a time with a .22 caliber silent air rifle. When I moved out, the starlings moved in.

Ornithologist Eugene P. Odum, of the University of Georgia, tried to console me by saying that there would always be some wilderness areas which the starlings would not occupy. His prediction is borne out by a breeding-bird survey in the McCain Tract in Hoke County, N.C., and reported by Mary Kay Clark and Eloise F. Potter in the Spring 1982 issue of *Chat.*—JOE JONES, Route 2, Box 302, Berryville, Virginia 22611

Newspaper Gleanings

In Santa Monica, California, a blackbird made life miserable for bald-headed men by dive-bombing them. The ornithologist at the County Museum said that blackbirds can be very aggressive, and may see bald-headed males as predators.

A complete set of Audubon's *Birds of America* has been sold for $1.77 million. The 435 prints were sold separately, with the Trumpeter Swan bringing $45,000. And poor John James could hardly give his pictures away!

Here in North Carolina, three Golden Eagles and two Bald Eagles have been released, in the mountains and at Mattamuskeet, respectively. So keep your eyes open.

Seventeen million birds of 18 species left Christmas Island mysteriously 6 months ago. Now they are returning, and watchers say it is all tied up with El Nino, those warm currents in the Pacific that made our local summer so miserable.

Raised Eyebrows Department

In the *Wasington Post* for 19 August 1983, Paul Berg presents an article about Claudia Wilds, "whose life list contains 3,200 species." The Smithsonion recently published her *Finding Birds in the National Capital Area.* Mr. Berg writes that "it takes time and money to build a long list of birds, although there 's no rule against counting birds that other people show you. Even birds spotted at the National Zoo can be counted." In fairness to Miss Wilds, we stress that Mr. Berg does not say that Miss Wilds made that rash claim. If we can claim birds in a zoo, put this writer's life-list down at over a thousand!

Mr. Berg makes another slip when he writes that netting and banding birds is done "largely for the tactile pleasure." Wonder where he got that idea.—LCF

On the Evolution of the House Finch

In the spring 1983 issue of *Chat,* mention was made of John W. Aldrich's finding that the House Finch of the eastern United States has undergone significant morphological changes since the parental stock was released some 40-odd years ago. The fact that the birds have adapted so successully to a radically different climate than the one they presumably evolved in is rather startling in itself. Curiously, the House Finch has not spread from the West to the East on its own, although there is evidence that the birds have moved eastward in the Great Plains as that part of the country has been settled up.

Assuming that the birds nesting about Raleigh are typical of the eastern population, I've been struck by what sounds to these ears like changes in song pattern and delivery. I recall that the House Finches of Southern California, and those about the Bay Region, rendered a rather languid warble that had little carrying power. The local birds have a loud, rapid song that puts me in mind of the petulant delivery of the Chaffinch of Europe. Also, I've noticed that some of the House Finches on the North Carolina State University campus incorporate a phrase that sounds like the "what cheer" note of the Northern Cardinal.

The Chaffinch lives in low trees and does much feeding on the ground, and that seems to be the style the local House Finches are opting for. Are our House Finches turning into Chaffinches, sort of?—JOSHUA A. LEE, 5104 Newcastle Road, Raleigh, N.C. 27606

General Field Notes

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An Additional Red-billed Tropicbird Sighted in North Carolina Offshore Waters

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On 27 August 1983, during a trip on the headboat *Captain Stacey* out of Morehead City, N.C., we observed an immature Red-billed Tropicbird (*Phaethon aethereus*). The bird was sighted approximately 40 miles SE of Morehead City and was flying at a height of about 40 feet in a northeasterly direction. We studied the bird through 10X and 7X binoculars as it circled once about 100 yards off the stern of the boat and then continued out of sight. The time of observation was about 0900, and light conditions were excellent, with the sun at our backs. Wind was light, out of the northeast, and seas were only 1 to 2 feet, thereby making for ideal viewing conditions even though the boat was moving at a high rate of speed.

The bird was in view for about 1 minute, and the following field marks were noted. Size was similar to a Royal Tern (*Sterna maxima*), and the bird flew with full, sweeping wingbeats, faster than a large tern's. There were prominent black areas on the basal half of the primaries and adjacent portions of the primary coverts. The mantle color appeared gray. The tail was white, wedge-shaped, and without elongated central feathers. The bill was orange, and the white head had a black stripe extending through the eye and back to the nape, almost encircling the head.

Articles on tropicbirds by Lee, Wingate, and Kale (Amer. Birds 35:887-890) and Lee and Irvin (Chat 47:1-13) were consulted, as was the new *Seabirds, An Identification Guide* by Peter Harrison (Houghton Mifflin Co., Boston, 1983). We are convinced the bird was an immature Red-billed Tropicbird.

This represents the fifth record of the Red-billed Tropicbird from the Carolinas and the second of an individual in immature plumage. Like the others, this sighting did not appear to be storm related. Of the four previous records, three are from May and one is from early September. The August record reported here partly bridges the hiatus between these months and further suggests that some of the previously published nondescriptive reports of White-tailed Tropicbirds may have been *P. aethereus.*

Expansion of White Ibis Nesting in North Carolina

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Since the first nesting by the White Ibis (*Eudocimus albus*) in the Carolinas was recorded in 1922 at Fairlawn Plantation, Charleston County, S.C. (Sprunt and Chamberlain 1949), the ibis breeding population has increased and spread northward. The species was first recorded as a breeding bird in North Carolina in 1950 when 1200 White Ibis nested at Lennons Marsh, Robeson County (Stephans 1950). However, a permanent colony was not established at this site (Potter et al. 1980). In 1963, an estimated six pairs of White Ibis nested at Battery Island, Brunswick County (Adams 1963). The breeding population at Battery Island has increased over the past two decades to 3737 pairs in 1983

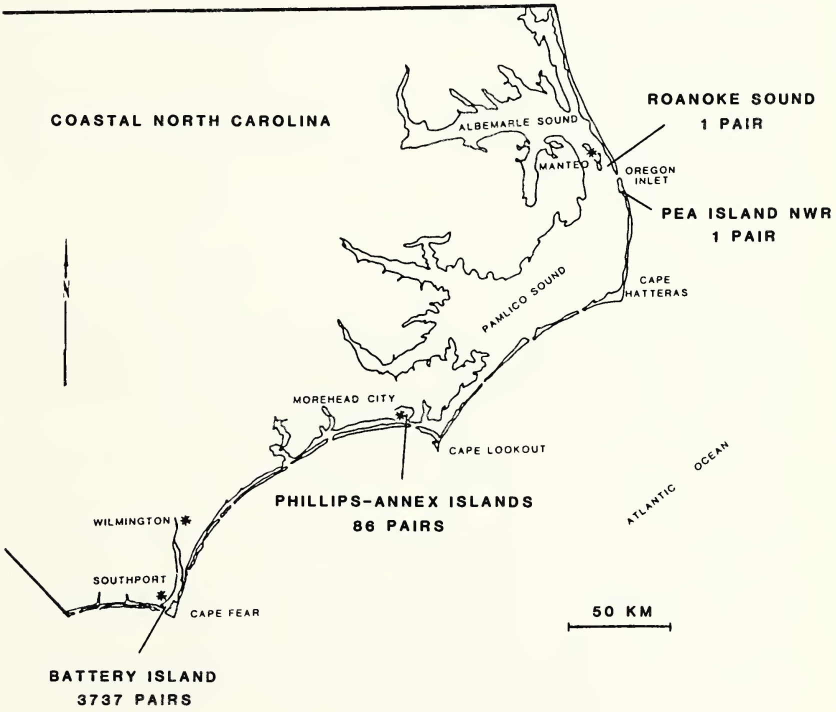
COASTAL NORTH CAROLINA
N
ALBEMARLE SOUND
MANTEO
ROANOKE SOUND
1 PAIR
OREGON INLET
PEA ISLAND NWR
1 PAIR
PAMLICO SOUND
CAPE HATTERAS
MOREHEAD CITY
CAPE LOOKOUT
PHILLIPS-ANNEX ISLANDS
86 PAIRS
ATLANTIC OCEAN
WILMINGTON
SOUTHPORT
CAPE FEAR
50 KM
BATTERY ISLAND
3737 PAIRS

Fig. 1. Distribution of White Ibis breeding population in North Carolina, 1983.

(pers. obs.). In 1971, two pairs of White Ibis were reported nesting at the Phillips Island heronry near Morehead City, Carteret County (Teulings 1971), approximately 150 km NE of Battery Island. The ibis population at Phillips Island (and nearby Annex Island) increased to 51 pairs in 1976 (Parnell and Soots 1979) and 86 pairs in 1983 (D. A. McCrimmon Jr., pers. comm.). The Phillips Island colony was the most northern breeding site of the White Ibis in North America until 1977 when a single White Ibis nest was discovered approximately 270 km NNE in a heronry on Fishermans Island, Virginia (Frohring and Beck 1978).

From 18 to 28 May 1983 the authors were involved in a census of colonial waterbird colonies along the North Carolina coast. On 27 May we discovered the nest of a White Ibis in a mixed-species heronry at Pea Island National Wildlife Refuge, Dare County. The nest was about 2.5 m above the ground in a Wax Myrtle (*Myrica cerifera*) shrub and contained one chick 10 to 15 days old and one apparently infertile egg. Two adult ibises were seen circling overhead and perched in nearby trees. The White Ibis is considered a permanent resident at Pea Island (LeGrand 1983), but breeding at the Refuge was never previously confirmed. On 28 May a White Ibis nest containing two eggs was found in heronry on a dredged-material island in Roanoke Sound, Dare County, about 15 km NNW of the Pea Island heronry. Four adult White Ibis were present in the heronry, and several other large nests resembling those of the White Ibis were observed. The contents of these nests could not be seen owing to the heights of the nests; therefore, we could not confirm nesting by a second pair of White Ibis at this site. We visited the island a second time on 14 June, but we were unable to examine the known ibis nest to determine its fate.

Breeding by White Ibis at the two northeastern North Carolina sites reported in this note represents a northeastward extension of the breeding range in North Carolina of nearly 150 km (Fig. 1). With a steadily increasing breeding population of White Ibis in North Carolina, continued range expansion may be expected.

ACKNOWLEDGMENTS

We thank the manager and staff of Pea Island National Wildlife Refuge for permitting us to census the Pea Island heronry and for providing access to the site. D. DuMond, W. Golder, D. McCrimmon Jr., and L. Rozas assisted in the censuses. We gratefully acknowledge the National Audubon Society, University of North Carolina Sea Grant Program, and U.S. Army Corps of Engineers for funding the colonial waterbird census.

LITERATURE CITED

Adams, D.A. 1963. Battery Island 1963. Chat 27:65-68.

Frohring, P.C., and R.A. Beck. 1978. First breeding record of the White Ibis (*Eudocimus albus*) in Virginia. Amer. Birds 32:126-128.

LeGrand, H.E., Jr. 1983. Southern Atlantic coast region. Amer. Birds 32:167-170.

Parnell, J.F., and R.F. Soots Jr. 1979. Atlas of Colonial Waterbirds of North Carolina Estuaries. U.N.C. Sea Grant Publ. UNC-SG-78-10.

Potter, E.F., J.F. Parnell, and R.P. Teulings. 1980. Birds of the Carolinas. Univ. North Carolina Press, Chapel Hll.

Sprunt, A., Jr., and E.B. Chamberlain. 1949. South Carolina Bird Life. Univ. South Carolina Press, Columbia.

Stephens, J.L. 1950. White Ibis found nesting in North Carolina. Chat 14:49-50.
Teulings, R.P. 1971. Southern Atlantic coast region. Amer. Birds 25:843-846.

Ingestion of Grit by Wood Warblers

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Use of grit as an aid to digestion by granivorous and herbivorous birds is widely reported in the general literature. Ingestion of grit apparently begins quite early in life. Crook (1975) observed a parent Chipping Sparrow (*Spizella passerina*) feeding grit to fledglings, one of which began pecking grit for itself.

Hauser (1962) examined pellets cast by a captive Blue Jay (*Cyanocitta cristata*) received when about 2 weeks old, with “no feather tufts protruding from the sheaths of the tail feathers.” The first pellet, composed of food provided by the parent birds, contained iridescent bits of beetle wings, a few small flat reddish seeds, and three small, sharp-edged pebbles, two of flint-like stone and one of quartz.

Only recently have bird students begun to report ingestion of grit by insectivorous birds as anything more than unusual behavior. Jenkinson and Mengel (1970) found ingestion of stones to be widespread among goatsuckers. Brown (1976) watched Purple Martins (*Progne subis*) gathering bits of gravel and slivers of glass from an urban roadside during April, May, and June of 1975. Barlow and Klass (1963) observed swallows picking up gravel or sand. Barrentine (1980) found grit in the stomachs of 80% of the nestling Barn Swallows (*Hirundo rustica*) he examined at 1 to 16 days of age. He suggests grit may be used as an aid to the digestive processes, as a mineral supplement, or both.

From January through early June 1982 I conducted a systematic study of the birds of mainland Dare County, N.C., for the North Carolina State Museum in cooperation with the U.S. Fish and Wildlife Service. Thus I was observing the same birds from the time they established breeding territories through the fledging of first broods. Some of the early nesters had begun second nests before the study ended. While wood warblers were feeding young, I noticed adults of several species pecking at the sandy roadways. Birds engaged in this behavior were quite fearless and allowed me to approach within 10 feet before moving a short distance and resuming the pecking. Brown (1976) reported similar behavior for Purple Martins. Careful examination of the ground at each site revealed no insects, seeds, or other food items. I concluded that the birds were picking up grit.

Onset of nesting by the Pine Warbler (*Dendroica pinus*) was noted on 31 March when a female was seen carrying nesting material. A female Pine Warbler was seen pecking sand on Long Curve Road on 1 May. I was present at this stop no more than 10 minutes on any one date.

Black-throated Green Warblers (*D. virens*) arrived on the nesting grounds on or about 30 March. Nest construction was noted on 18 April. On 16 May a male and a female of this species were seen carrying food and pecking in sand at the edge of Sawyer Lake Road. Prairie Warblers (*D. discolor*) also arrived on the nesting grounds about 30 March. On 16 May two adults of this species were carrying food and pecking sand on Sawyer Lake Road.

On this same date a female Northern Parula (*Parula americana*) visited the roadway and appeared to be seeking grit, but no pecking was actually observed. I was present at the 300-yard Sawyer Road census route no more than 30 minutes on 16 May.

On 31 May 1983 David S. Lee and I saw a Yellow-throated Warbler (*D. dominica*) pecking sand on the rim of a Carolina bay in Bladen County, N.C.

I have found no mention of grit in any readily available reference on the food habits of wood warblers. Nonetheless, the above observations strongly suggest that feeding of grit to nestlings is widespread among the Parulinae. Contribution 1983-9 of the North Carolina Biological Survey.

LITERATURE CITED

Barlow, J.C., and E.E. Klass. 1963. Sunning of Bank Swallows and Cliff Swallows. Condor 65:438-440.

Barrentine, C.D. 1980. The ingestion of grit by nestling Barn Swallows. J. Field Ornith. 51:368-371.

Brown, C.R. 1976. Use of gravel by Purple Martins. Auk 93:842.

Crook, D. 1975. Chipping Sparrows feeding grit to offspring. Wilson Bull. 87:552.

Hauser, D.C. 1962. Notes on pellets cast by a baby Blue Jay. Chat 26:29.

Jenkinson, M.A., and R.M. Mengel. 1970. Ingestion of stones by goatsuckers (Caprimulgidae). Condor 72:236-237.

BRIEFS FOR THE FILES

HARRY E. LeGRAND JR.

(All dates 1983 unless otherwise indicated; SBC = Spring Bird Count)

COMMON LOON: Ricky Davis observed eight in flight over Beaverdam Reservoir in northern Wake County, N.C., on 24 April.

PIED-BILLED GREBE: Twelve grebes at Falls Lake in eastern Durham County, N.C., on 22 May probably were breeding individuals (Ricky Davis, Harry LeGrand).

NORTHERN FULMAR: John Fussell found a dead fulmar on the beach at Pine Knoll Shores, Carteret County, N.C., on 18 March. Two or three were observed by Lloyd Davidson about 15 miles E of Ocracoke, N.C., in mid-March.

BLACK-CAPPED PETREL: Rarely seen off Cape Lookout, N.C., were two approximately 38 miles SSE of the cape on 18 April (Wayne Irvin).

LEACH'S STORM-PETREL: A petrel identified as either a Leach's or a Band-rumped was seen 60 miles SE of Charleston, S.C., on 17 April by Dennis Forsythe and party. [The marks of "forked tail" and especially "bounding flight" appear to rule against Band-rumped in favor of Leach's.—HEL] Two Leach's were seen off Morehead City, N.C., on 19 June by Wayne Irvin.

AMERICAN WHITE PELICAN: Two birds, probably overwintering individuals, were observed by Ed Blitch on 6 April at Charleston.

NORTHERN GANNET: Michael Britten had a good count of 91 gannets migrating N at Cape Hatteras point, N.C., on 27 April.

DOUBLE-CRESTED CORMORANT: Barbara Roth reported that 182 were seen on the Jordan Lake SBC, N.C., on 8 May. Six were seen at Falls Lake on the Durham, N.C., SBC on 24 April (fide Mike Schultz). Elsewhere in inland North Carolina, Philip Crutchfield saw three flocks totaling 280 birds flying NW in the Lake Waccamaw - Bolton area on 24 April; five were seen at Lake Norman on 14 April by Paul Hart, Heathy Walker, and Clare Walker; and up to two were seen by Philip Crutchfield at Fayetteville from 11 to 27 April.

ANHINGA: Four were seen at a roost at Sunset Beach, N.C., on 24 April by Philip Crutchfield and Dana Mather. Crutchfield also noted the species again at Jessup's Mill Pond near Fayetteville, with one on 14 April and a pair later in the spring.

MAGNIFICENT FRIGATEBIRD: A female was observed by Pat Leonard at Kiawah Island, S.C., on 4 May.

CATTLE EGRET: One was far inland near Asheville, N.C., on 15 April (Ron Warner). Others in inland North Carolina were at Jordan Lake, Falls Lake, Raleigh, Halifax, and Zebulon, with the best count being six near the last town on 20 May (Ricky Davis).

GREAT EGRET: A few individuals were seen in April and May at the following lakes in central North Carolina: Jordan, Falls, Woodlake, and Wheeler. Nine at Woodlake, near Vass, provided an excellent spring count on 1 May (Tom Howard).

REDDISH EGRET: An excellent find was a bird in the normal (dark) phase at Mount Pleasant, S.C., seen by Cheryl Phillips and Julia Hill on 24 May.

BLACK-CROWNED NIGHT-HERON: Philip Crutchfield noted migrants near Fayetteville on 18 and 26 April. On SBCs were one at Chapel Hill on 1 May (Ken Knapp, Don Tarbet, Julie Stewart) and two at Raleigh on 7 May (fide Robert Hader).

AMERICAN BITTERN: Outstanding was the count of 26 on the Durham SBC on 24 April (fide Mike Schultz). Ramona Snavely saw one of the early dates of 8 and 9 March in southwestern Forsyth County, N.C. Two seen at Cedar Island, N.C., on 30 May by John Fussell and Wayne Irvin may indicate a breeding population at the refuge there.

GLOSSY IBIS: Unusual inland was a flock of 8 to 10 seen in flight near Raleigh, N.C., on 2 April by George Hervey. The first record for the North Carolina Sandhills was one seen by Tom Howard and others near Whispering Pines on 1 May.

ROSEATE SPOONBILL: Very early and rare was an adult observed by Mark Epstein at Cat Island, S.C., near Georgetown, on 17 March.

TUNDRA SWAN: Perry Nugent and party noted 11 in Charleston harbor on 30 January, and another was quite late on 30 April at Jordan Lake (Anson Cooke et al.). Frank Enders saw 154 several miles W of Halifax, N.C., on 1 February; this flock may have been a part of the 500+ swans found all winter between this location and Caledonia Prison Farm near Tillery.

CANADA GOOSE: From late April to mid-May, free-flying birds were seen at five places in Moore County and one site in Richmond County in the North Carolina Sandhills, fide Jay Carter. Marion Jones found an active nest near Pinehurst on 1 May.

FULVOUS WHISTLING-DUCK: Seldom seen in spring were five noted by John Fussell and Ted Best at Cedar Island, N.C., on 26 April.

GREEN-WINGED TEAL: Late were two birds seen at Fort Macon State Park, N.C., on 2 and 3 May by John Fussell and Larry Crawford.

BLUE-WINGED TEAL: A good tally of 98 was made on the Durham SBC on 24 April, according to Mike Schultz, and two (possibly a breeding pair) were seen on Falls Lake on 22 May by Ricky Davis and Harry LeGrand.

EURASIAN WIGEON: Always noteworthy, a male was observed by Peter Manigault near the North Santee River, S.C., on 15 and 16 January.

GREATER SCAUP: Rather late was a male seen flying along the coast at Atlantic Beach, N.C., on 23 April by Jim Mulholland.

LESSER SCAUP: A male was out of season on a pond at Sunset Beach, N.C., on 18 and 19 June (David Swanson, Jim McConnell). Good counts of scaup (species undetermined, though probably Lessers) were 250 at Falls Lake on 25 March (Bill and Margaret Wagner) and 42 on Fontana Lake, Graham County, N.C., on 7 April (Owen McConnell).

COMMON EIDER: Two individuals were rare and late on the beach at Ocracoke Island, N.C., on 26 April, as noted by Michael Britten.

WHITE-WINGED SCOTER: One on 1 May at Pine Knoll Shores, N.C., was quite late (Larry Crawford, John Fussell).

BLACK SCOTER: Steve Everhart observed a pair of stragglers at Fort Fisher, New Hanover County, N.C., on 14 June.

BLACK VULTURE: Frederick Test saw a "small flock" migrating northward over Asheville on 21 March 1981. The species is infrequently reported from the mountains.

AMERICAN SWALLOW-TAILED KITE: Single birds were out of range in North Carolina at a number of places in the lower coastal plain: North Hollow in Craven County on 9 April (Charles Manooch), Kenansville on 13 April (Micou Browne), Core Banks on 5 May (John Thompson), Harkers Island on 6 May (Skip Prange), Bodie Island and Rodanthe both on 30 May (Jack Reinoehl), and near Coinjock on 5 June (Chris Kieffer).

MISSISSIPPI KITE: A first record for Carteret County, N.C., was the sighting of an adult and three subadults by John Fussell at Cedar Island on 15 May. Wake County, N.C., also had a first kite—an adult seen by Jim Mulholland in southwest Raleigh on 1 May. Merrill Lynch saw an adult in southeastern Bertie County, N.C., on 10 May; and Jay Carter noted two adults W of Cheraw, S.C., on 14 May.

COOPER'S HAWK: An immature female was very rare at Cedar Island on 26 April, as seen by John Fussell.

BROAD-WINGED HAWK: Noteworthy for the Outer Banks were seven migrants seen by Michael Britten near Buxton, N.C., on 27 April.

GOLDEN EAGLE: Robert Ruiz observed an adult at Camp Rockmont in Buncombe County, N.C., on 4 May.

BALD EAGLE: Individuals were seen this spring in central North Carolina near Aberdeen (Gay Duncan), Jordan Lake (Bill and Margaret Wagner), Falls Lake (Wagners), and

Beaverdam Reservoir (Wayne Irvin). One was rare at Cedar Island on 15 May (John Fussell).

OSPREY: At Jordan Lake, Ricky Davis observed an early individual on 5 March, and he and Allen Bryan had an excellent count of 27 there on 17 April.

PEREGRINE FALCON: Very rare inland in spring was an adult seen by Merrill Lynch W of Enfield, N.C., on 27 March. Along the coast were falcons noted at Moore's Landing in Charleston County, S.C., on 10 April (Perry Nugent party), at Pea Island, N.C., on 17 April (Ray Chandler), and at Fort Macon State Park, N.C., on 27 April (John Fussell).

MERLIN: Single birds were observed inland near Fayetteville on 6 April by Philip Crutchfield and at Falls Lake on 24 April by Andy Towle.

AMERICAN KESTREL: Allen Bryan noted one on 22 May near Edenton, N.C., a locality to the east of the breeding range. Notable was a breeding report from Raleigh, where Wayne and Fran Irvin found a nest in a barn at Dorothea Dix Farm and observed at least two fledged young in late May.

SANDHILL CRANE: Unusual for South Carolina were three seen along US 301 at Santee National Wildlife Refuge from 15 December to 23 January by Perry Nugent and others.

VIRGINIA RAIL: A late migrant was found dazed on a skyscraper roof in downtown Winston-Salem, N.C., on 26 May by Charles Frost and Bob Witherington. Approximately five adults, presumably breeders, were flushed by a large fire at Cedar Island on 30 May, as noted by John Fussell and Wayne Irvin.

BLACK RAIL: John Fussell and Wayne Irvin saw 10 adults flushed by the Cedar Island fire on 30 May. Large numbers of this species presumably breed on the island.

PURPLE GALLINULE: Bob Holmes observed one at North River in Carteret County, N.C., on 30 April.

COMMON MOORHEN: This rare inland migrant was detected on 13 April at Salem Lake near Winston-Salem, where it was caught, banded, and released (Tom Mowbray, Ramona Snavely). Others inland were seen at Jordan Lake on 28 April by Bill and Margaret Wagner, and at Falls Lake on 15 May by Allen Bryan and John Alderman and again on 22 May by Harry LeGrand and Ricky Davis.

AMERICAN COOT: One was late at Falls Lake in Durham County on 22 May (Ricky Davis, Harry LeGrand).

BLACK-NECKED STILT: Several were seen this spring and were presumably nesting at a spoil area along the Cooper River at Mount Pleasant, S.C., as reported by Julia Hill and Perry Nugent.

SEMIPALMATED PLOVER: The best inland count for the spring was nine seen by Ricky Davis at Jordan Lake on 8 May.

LESSER GOLDEN-PLOVER: One was very early, in partial breeding plumage, on Shackleford Banks, N.C., on 13 and 14 March, as noted by John Fussell. Single birds were also seen in central Carteret County, N.C., on 30 April (Fussell) and at Woodlake, near Vass, N.C., on 1 May (Tom Howard).

BLACK-BELLIED PLOVER: Quite rare in spring were three observed at Falls Lake on 15

May by Allen Bryan, John Alderman, and Ricky Davis.

LONG-BILLED CURLEW: Apparently wintering were two Long-billeds noted by John Fussell at Portsmouth Island, N.C., on 2 and 3 March.

WHIMBREL: Late and unusual was a flock of 20 seen migrating by Frank Enders over his home near Darlington in Halifax County, N.C., on 3 June.

UPLAND SANDPIPER: One was observed at Winston-Salem, N.C., on 1 May by Charles Frost; and Frank Enders saw two W of Halifax on the same date.

GREATER YELLOWLEGS: Rather late on 22 May was an individual at Falls Lake (Harry LeGrand, Ricky Davis).

RED-NECKED PHALAROPE: Two females in breeding plumage were studied by Eleanor Dodson, Jackie Shelton, and Ramona Snavely in western Forsyth County, N.C., from 18 to 23 May. Three were early migrants on 17 April as seen by Dennis Forsythe off Charleston.

RED PHALAROPE: Dennis Forsythe saw at least 100 off Charleston on 17 April. Such large numbers of this pelagic species are not unusual in March and April off of the coast of the Carolinas.

SHORT-BILLED DOWITCHER: Rare in spring were three observed on 15 May by Allen Bryan, John Alderman, and Ricky Davis at Falls Lake.

LONG-BILLED DOWITCHER: Most unusual inland was an individual seen and heard by Ricky Davis at Falls Lake on 15 May. Perry Nugent and Dennis Abbott had another inland at Santee refuge, S.C., on 29 January. This species is apparently regular in winter at the refuge on Lake Marion.

RED KNOT: A count of 155, undoubtedly wintering birds, was notable on 3 March at Portsmouth Island (John Fussell).

LEAST SANDPIPER: This species winters regularly on several inland lakes in South Carolina, but a total of 50 at Santee refuge on 29 January, as noted by Perry Nugent and Dennis Abbott, was quite high. Another good count was 66 on the Jordan Lake SBC on 8 May (fide Barbara Roth).

PECTORAL SANDPIPER: Extremely rare in midwinter was one seen by Perry Nugent and Dennis Abbott at Santee refuge on 29 January.

DUNLIN: Ricky Davis observed two at Falls Lake on 10 May.

POMARINE JAEGER: On pelagic trips, Dennis Forsythe saw one off Charleston on 17 April, and Wayne Irvin had three off Cape Lookout, N.C., on 18 April. Observers from shore on Bogue Banks, N.C., saw three on 10 April (John Fussell) and two on 30 April (Larry Crawford).

PARASITIC JAEGER: Five at Atlantic Beach, N.C., on 15 April (John Fussell) was an excellent count for the date, as the species migrates north mostly in May and early June. Fussell observed another from the same beach on 19 May.

LONG-TAILED JAEGER: Very rare and early was an individual seen by Wayne Irvin off Cape Lookout on 18 April.

GLAUCOUS GULL: One seen in winter at a landfill near Newport, N.C., was last noted by John Fussell on 18 March.

ICELAND GULL: Very late was an immature well described on Masonboro Island near Wrightsville Beach, N.C., on 21 April by Mark Galizio and John Hardwick. Well inland was an immature seen 0.5 mile SE of the US 158 bridge on the Chowan River, N.C., on 4 April by Bill Williams. John Fussell observed one at several places in the Morehead City, N.C., area between 13 and 18 March.

LESSER BLACK-BACKED GULL: An adult was seen at the Newport, N.C., landfill from 13 to 19 March by Royce Hough and Wayne Irvin.

RING-BILLED GULL: Unusually high inland counts were 75 in a parking lot at Asheville, N.C., on 26 April (Robert Ruiz), 225 near Vass on 1 May (Tom Howard), 200 in a pasture at Raleigh on 8 and 17 March (Wayne Irvin), and 600 at Jordan Lake on 27 March (Charlie Lyon).

LAUGHING GULL: A good inland find was one at Falls Lake, as noted by Ricky Davis on 18 May.

BONAPARTE'S GULL: Allen Bryan had a notable tally of 82 at Jordan Lake on 10 April, and Ricky Davis saw four late individuals there on 8 May.

LITTLE GULL: An adult in winter plumage was noted by John Fussell and Bob Holmes on 9 April at Atlantic Beach. An immature was observed in Morehead City on 18 April by Wayne Irvin, and likely the same individual was quite late at nearby Fort Macon from 2 to 21 May (Fussell et al.).

FORSTER'S TERN: Inland migrants were seen by Jim Mulholland at Lake Wheeler near Raleigh on 2 April and by Andy Towle and Tony Shrimpton at Jordan Lake on 27 April.

COMMON TERN: The only inland report for the spring was of two seen by Tom Howard at Woodlake, near Vass, on 1 May.

ARCTIC TERN: Late May is the best time for seeing this rather rare pelagic migrant. Thus, notable, but not unexpected, were three seen off Hatteras, N.C., on 29 May by Robert Ake and party.

SOOTY TERN: Robert Hader and James Parnell observed one resting with Black Skimmers on a road at Ocracoke, N.C., on 25 May. Wayne Irvin noted three or four on a pelagic trip off Morehead City on 19 June.

CASPIAN TERN: Inland reports included nine at Falls Lake on 24 April (Mike Schultz et al.), six at Jordan Lake on 17 April (Allen Bryan et al.), three at Lake Wheeler on 22 April (Jim Mulholland), two near Vass on 1 May (Tom Howard), and two at Jordan Lake on 8 May (Ricky Davis).

BLACK TERN: Quite rare inland in spring was one in breeding plumage seen by Ricky Davis at Falls Lake on 15 May.

BLACK-BILLED CUCKOO: Very rare for Carteret County, N.C., was one seen by Larry Crawford and others on 30 April and 1 May at Pine Knoll Shores.

COMMON BARN-OWL: Andy Towle and Tony Shrimpton saw one in a barn, where it was apparently nesting, at Jordan Lake on 26 April and 1 May.

WHIP-POOR-WILL: Two were noted by Perry Nugent and Dennis Abbott along Seewee Road NE of Charleston on 26 January. This species winters regularly in Charleston County but is infrequently seen because of its nocturnal habits.

LEAST FLYCATCHER: Ken Knapp saw and heard one at Jordan Lake on 8 May, and he and others noted two at Raleigh on 7 May.

HORNED LARK: Paul Hart and Heathy Walker noted four, including two singing males, in eastern Cleveland County, N.C., on 31 May. A pair was seen by Frank Enders from April into June near Darlington, Halifax County, N.C.

BANK SWALLOW: John Fussell had several records in coastal Carteret County between 19 April and 22 May, including 10 at Cedar Island on 14 May. Also uncommon along the coast were two at Sunset Beach, N.C., on 24 April (Philip Crutchfield, Dana Mather). A good inland count was 100 at Falls Lake on 10 May (Ricky Davis).

CLIFF SWALLOW: Probably a late migrant was an individual seen at a lake SE of Rocky Mount, N.C., on 29 May by Ricky Davis.

COMMON RAVEN: Unusual outside of the mountains was one seen and heard by Derek Carrigan at Granite Falls, N.C., on 10 April.

RED-BREASTED NUTHATCH: Merrill Lynch observed an extremely late bird at Hall Swamp in Martin County, N.C., on 27 May.

BROWN-HEADED NUTHATCH: Several were regular at Derek Carrigan's feeder during the winter in Granite Falls, N.C., where it is apparently absent in summer. Bill Duyck again noted one in his Asheville yard on 1 and 5 May. Very rare for Bogue Banks was one at Pine Knoll Shores on 22 April, as seen by John Fussell.

HOUSE WREN: At the edge of the breeding range was a male on territory at Fayetteville from 27 April into June (Philip Crutchfield, Henry Rankin Jr.)

BEWICK'S WREN: One was seen in a yard in northern Asheville on several dates in late April. It was investigating rolled awnings at a home, possibly for a nesting site, but the home owner chased the bird away, according to Frederick Test. A migrant was east of its range at Beaverdam Reservoir, where seen by Ricky Davis on 24 April.

MARSH WREN: Rather rare for the mountains were two noted by Douglas McNair at Cullowhee, N.C., on 15 May.

GRAY-CHEEKED THRUSH: Three reports for Carteret County in spring were unusual. Singles were seen in Morehead City on 30 April and 1 May (Charles Lincoln), in the same town on 10 May (Mike Alford, John Fussell), and at Cedar Island on 15 May (Fussell).

WATER PIPIT: An excellent count of 500 was made by Perry Nugent and Dennis Abbott at Santee refuge on 29 January.

CEDAR WAXWING: Late departing waxwings were noted at Crowders Mountain State Park, N.C., on 28 May (Paul Hart), at Raleigh on 30 May (Gail Whitehurst), at Clemson, S.C., on 31 May (Alan Avakian), and in northeastern Sampson County, N.C., on 2 June (Eloise Potter).

SOLITARY VIREO: A nest was found by Dick Thomas at Weymouth Woods near Southern Pines, N.C., on 1 May.

BLACK-WHISKERED VIREO: Mark Galizio observed one near Masonboro Sound, New Hanover County, N.C., on 8 May, for the second state record. It was in the low branches of an oak and seen well. He noted that the "black whiskers were clearly visible in this bird which, otherwise, had the features of a Red-eyed Vireo." He is familiar with the species in Florida.

RED-EYED VIREO: Extremely early was one seen on 20 March by Wayne Irvin and John Fussell on Bogue Banks, N.C.

PHILADELPHIA VIREO: Very rare for Raleigh in spring was one seen and heard singing by Don Tarbet and Derrick Hamrick on 7 May.

WARBLING VIREO: The first suggestion of breeding of this species in Buncombe County, N.C., in over 50 years was the presence of a pair seen on 30 April and on many dates in May at Camp Rockmont, near Swannanoa, by Robert Ruiz. The birds were adjacent to a lake at 2200 feet in elevation.

SWAINSON'S WARBLER: Early for North Carolina was one heard singing along Bennett's Creek, Hertford County, on 9 April by Bill Williams. Paul Hart and Heathy Walker noted two singing birds and saw another along Jacob Fork River in South Mountains State Park, Burke County, N.C., on 26 May. Rhododendron was present in the habitat, and the birds were undoubtedly on their breeding grounds. Eloise Potter noted a singing bird along the South River at US 701 in Sampson County, N.C., on 2 June.

WORM-EATING WARBLER: A new breeding-season station was located by Eloise Potter, who heard four singing on 2 June in the flood plain of the South River at US 701 in Sampson County. Frank Enders noted two singing birds near Darlington in Halifax County in early summer. An uncommon migrant was seen by Michael Britten at Buxton, N.C., on 27 April.

BLUE-WINGED WARBLER: A fairly good count for the lower coastal plain was three at Four Holes Swamp, northern Dorchester County, S.C., on 16 April (Perry Nugent et al.).

TENNESSEE WARBLER: Rather rare for the piedmont of North Carolina were singles at Crowders Mountain State Park on 29 April and 2 May (Paul Hart), one near Elon College on 7 May (Allen Bryan), two at Charlotte on 7 May (David Dunham, Paul Hart), and four at Raleigh on 7 May (Leigh DeNeef, Jeff Walters).

ORANGE-CROWNED WARBLER: Migrants were observed at Jordan Lake on 20 March (Allen Bryan, John Alderman), at Morehead City on 16 April (Fran Irvin), at Clemson, S.C., on 16 April (two birds—Alan Avakian, John Hay), at Crowders Mountain State Park on 27 April (Paul Hart), and at Raleigh on 7 May (Leigh DeNeef).

NASHVILLE WARBLER: Allen Bryan saw and heard one in Ashe County, N.C., on 5 May.

BLACK-THROATED BLUE WARBLER: Rather early was a singing bird noted by Paul Hamel near Newry, S.C., on 12 April.

BLACK-THROATED GREEN WARBLER: Philip Crutchfield had a singing male on territory in the Beaver Dam section of Fayetteville from 6 April to 12 May. This city is west of the known breeding range of the coastal population.

CERULEAN WARBLER: Joshua Lee noted a migrant at Raleigh on 7 May.

BLACKBURNIAN WARBLER: Noteworthy along the coast in spring were two seen by Perry Nugent and party near Charleston on 1 May.

BAY-BREASTED WARBLER: Quite late were two males and a female seen by Harry LeGrand at the Raleigh-Durham Airport on 25 May.

PRAIRIE WARBLER: Chris and Perry Nugent observed one in their yard in Charleston on 9 January.

WILSON'S WARBLER: Unusual in winter was an individual seen by Perry Nugent and Dennis Abbott at Santee refuge on 29 January.

ORCHARD ORIOLE: John Fussell noted an adult male on 20 March at his feeder in Morehead City.

NORTHERN (BALTIMORE) ORIOLE: An excellent coastal count was 10 seen by Skip Prange at Cape Lookout, N.C., on 26 April.

NORTHERN (BULLOCK'S) ORIOLE: The first North Carolina report of a female, without an accompanying male, was an individual at a Fayetteville yard from 19 March to early May (Philip Crutchfield, Ruth Chesnutt, Henry Rankin Jr.). The bird had "yellow on face, throat, and upper breast; otherwise whitish undersides; crown olivish with yellow tints, back olivish, wings and tail gray, two white wing bars, outer tail feathers yellowish, bill paler than female Northern (Baltimore) Oriole", according to Crutchfield's description.

WESTERN TANAGER: A male at a feeder in Pine Knoll Shores, N.C., in the winter was last seen about 9 March by Kathy Kirkman. Another winter feeder bird was reported at Fayetteville into early May by Philip Crutchfield and others. Another male was seen at a feeder in Sumter, S.C., from January to 28 April by Mrs. Jim Mallard, fide Evelyn Dabbs. Most unusual was a female seen by Ron Warner at Bat Cave, N.C., on 31 May.

ROSE-BREASTED GROSBEAK: Two were rare on Bogue Banks on 30 April (Larry Crawford), and early was one at Pea Island on 16 April and another at Bodie Island on 17 April (Ray Chandler).

BLUE GROSBEAK: Robert Ruiz noted individuals at two sites near Swannanoa, N.C., on 7 May and 22 May; the species is rare in that area.

PAINTED BUNTING: A female or immature was a very rare and far inland visitor to a feeder in Raleigh from approximately 25 February to 25 April (David and Susan Roberts, Fran Irvin). Dorothy Foy saw an adult female on 26 April at Oriental, N.C., a town where the species formerly bred and perhaps still does breed.

DICKCISSEL: John Beeler observed one on five dates from 7 March to 11 April at Guilford College, N.C., as reported by Charlotte Dawley. A notable record and probable breeders were two singing males found on 26 and 31 May by Paul Hart and Heathy Walker near Kings Mountain, N.C.

HOUSE FINCH: Robert Ruiz and Helen Charbonneau observed several in May in both Swannanoa and Asheville, where breeding thus may be occurring. Also probably breeding were several pairs seen through May at two places in Fayetteville (Philip Crutchfield, Henry Rankin Jr.). Frank Enders noted the first conclusive breeding for Roanoke Rapids, N.C., finding a nest and three adults there from April to June in a downtown block.

GRASSHOPPER SPARROW: Near the edge of the breeding range were 11 singing birds and two juveniles at the Rocky Mount - Wilson Airport in Nash County, N.C., on 29 May (Ricky Davis). Surprisingly, the largest local breeding populations in the Carolinas have been near the edge of the range, in the upper coastal plain, probably because the fields tend to be larger in acreage than are those in most of the piedmont and mountains.

HENSLOW'S SPARROW: Perhaps on the wintering grounds were two seen within 3 feet of the observers (Dick Repasky, Steve Klause) at Scotland Lake in Sandhills Game Land, N.C., on 2 April.

LE CONTE'S SPARROW: Very rare for North Carolina were migrants seen by Wayne Irvin at Dorothea Dix Farm in Raleigh on 9 and 10 April and by Douglas McNair and many Carolina Bird Club members at Cullowhee on 15 May.

SEASIDE SPARROW: At least 150 were seen flying in front of the Cedar Island fire on 30 May by Wayne Irvin and John Fussell.

BACHMAN'S SPARROW: Very rare was one seen on the Chapel Hill SBC on 1 May by Andy Towle and Tony Shrimpton.

LINCOLN'S SPARROW: A bird at Skip Prange's feeder in Harkers Island, N.C., during the winter remained until 26 April.

BOOK REVIEW

Seabirds—An Identification Guide

Peter Harrison. 1983. Houghton Mifflin Company, Boston. 448 p. $29.95.

This is an excellent book. It is a little large for standard field use as an identification guide, but nevertheless well worth carrrying if one plans to spend any time observing birds at sea. The text covers 312 species of birds and is well illustrated. The publishers note that there are over 1600 individual color portraits. Thus, for most species, different sexes, ages, races, and other forms of plumage variation are well depicted. Additionally, 31 black-and-white plates illustrate plumage stages of single species or species easily confused. Plate 51, for example, has 11 illustrations of the dorsal and ventral plumage development in male and female Great Frigatebirds. The breeding and marine distributions of all seabirds have been mapped, and this certainly represents the best attempt to date to illustrate the known distribution of marine birds. The bibliography is up to date (the most recent citations are 1981) and relevant. Seaducks are covered only briefly in three pages at the end of the book.

The illustrations are of special interest. Harrison has personal field experience with all but 30 of the species discussed. It is unlikely that any other person has seen living examples of this many seabirds. A quick glance at nearly any of the 88 color plates should humble anyone who thinks he has mastered seabird identification. I have long wondered how people unfamiliar with the subtle differences in immature jaegers, for example, could hope to identify them with the simplistic illustrations in most field guides. The truth is that without considerable prior experience they could not. With Harrison's book in hand, one still would have difficulty in identifying all but the most typically plumaged birds, but at least one would be aware of the complexity of the problem. With the nomadic nature of many seabirds, and the limited knowledge of seasonal and geographic distributions of even North Atlantic species, the reader is quickly overwhelmed by plate after plate of cryptically plumaged birds that could conceivably occur in one area. Indeed many of the differences betwen plumages or races of single species are more pronounced than between some species. I have observed people on seabird excursions off the North Carolina coast happily tallying this and that, not realizing that they probably do not have the knowledge to separate a Laughing Gull from a Franklin's Gull, yet carefully comparing all the face patterns of black-and-white shearwaters thinking that what they see is definitely diagnostic because their field guide shows it that way. Conservatively marked seabirds are a challenge, and it is common to find the sight identifications of very experienced students of offshore bird watching (me included) proven wrong time after time once the bird is collected. This applies to common everyday species, not just rarities. Harrison's artful capture of Dovekies, as a blur of wings supporting a black-and-white blob, expresses well both the spirit of seabirds and the agonies of seabird watching.

Perhaps the most refreshing aspect of the book is its use of behavioral traits in field identification. Although this type of information has been used in a limited sense to recognize species of land birds (e.g. tail wagging) it has not been covered in field guides for seabirds. Because voice is normally not a useful or practical way to recognize marine birds and judging size or distance is difficult, any additional advantage the observer can obtain is welcomed. Although the field marks that separate Black-capped Petrels, Greater Shearwaters, and Cory's Shearwaters may be adequate under good light and prolonged, close-range views, the normal flight patterns are just as diagnostic and recognizable from greater distances. For some species, such as our storm-petrels, the behavioral characteristics are a more valuable identification tool than field marks.

The hunger for knowledge on seabirds must be considerable. I note, for example, one of my, to date, unpublished findings was picked up at a talk I gave on seabirds, and included and illustrated in the book. The information in question was credited to the person in the audience who passed it on. This certainly was no fault of the author, and the intermediate party was, of course, simply relaying his enthusiasm for seabirds. Similar experiences have happened to me even in journals (although the events were less innocently explained). Still, it is refreshing to participate in a field of study where our ignorance is so vast, interest so high, and almost every accurate observation a real contribution to our knowledge. Imagine what could be learned on a several day's voyage off Madagascar or the Juan Fernandez Islands. Such thoughts have apparently spawned the recent excitement in studying birds at sea. This book is timely, useful, and more carefully prepared than Tuck and Heinzel's 1978 work, *A Field Guide to the Seabirds of Britain and the World* (see *Chat* 44:53-54), the only other similar text on the subject.

Book reviews somehow seem lacking if they do not contain a list of negative points intended to promote the prestige of the reviewer at the expense of the reviewee. As a person thoroughly immersed in seabird research, I must confess that I can find little fault with the overall intent and execution of this book as far as seabirds are concerned. The book, to me, has only two annoyances, both of which are minor when compared to its accomplishments. First, the text accompanying the plates and the species accounts is well endowed with abbreviations (NAO, AR, FHJ, DM, SS, and so forth). I question whether this saves enough space in a book of 400+ pages to be worth the effort of remembering what the abbreviations stand for, or looking them up on a rolling ship, while holding binoculars. Second is a preponderance of British names (Arctic Skua, Little Auk, Brunnich's Guillemot, Maderian Storm-Petrel, Great Northern Diver). I thought we just went through all those recent name changes and synonymized the English names on both continents!

It is a good book. If you are interested in seabirds at all and are going to limit yourself to one book, this is it.—DAVID S. LEE

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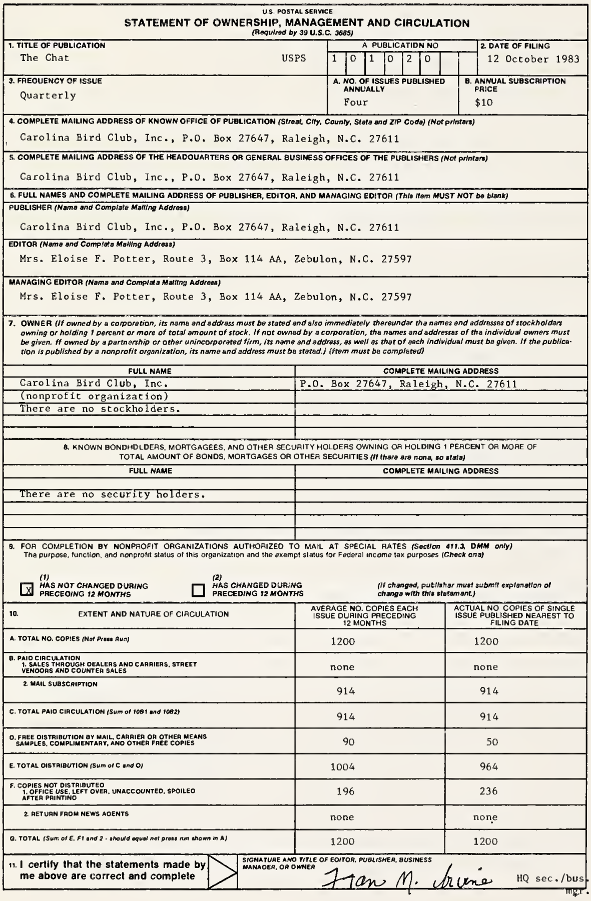

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